WESTERN FARMER & GARDENER.

"THE PROFIT OF THE EARTH IS FOR ALL; THE KING HIMSELF IS SERVED BY THE FIELD."—*Eccles* 5-9.

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WESTERN FARMER & GARDENER.

HENRY WARD BEECHER---Editor.

JOHN D. DEFREES, *Printer and Publisher.*

Indianapolis, April, 1847.

NOTICE.

The editor of the Farmer and Gardener is not connected with the BUSINESS of the office in any manner as publisher; nor can he as a general rule, attend to matters belonging to the business department. All business letters should be sent to J. D. Defrees. If correspondents wish, along with their communications, to send errands of business, they must either put them on separate strips of paper, or so place them that they can be torn off the sheet without injury to the communication. If this is not done, the publisher will hardly see the errand; and, nine times in ten, the editor will be unable to attend to it. Attention to this will save trouble to our subscribers.

PREMIUMS!—Any person sending us ten subscribers and the money ($5,) shall be entitled to a volume of the Farmer and Gardener, for 1846 or 1845, as he may prefer. For fifteen subscribers he shall have both volumes, or either *one* of them neatly *bound*. Any person sending twenty-five new subscribers shall be entitled to *both* of the back volumes of the Farmer and Gardener neatly and substantially *bound* We have but few copies of the Farmer and Gardener for 1845; say sixty or seventy; and we shall give due notice when these are exhausted, that none may be dissatisfied.

N. B. Those who accept the twenty per cent. commission, will not be entitled to the above premiums.

APOLOGIES.—We wish our obliging correspondents would leave out all apologies for bad writing, bad spelling, and bad everything else. No apology would save your articles if they really had no value; and if they are valuable they do not need any. In either case apologies are superfluous. What if you *are* a young farmer? Every body has to *begin* and I hope that is no crime. What if you are not used to writing? "practice makes perfect."

Really, if any body ought to apologize, it is the man who loves to read the Farmer and Gardener, feasting on what others write, but never contributes an article himself!

There is a steady increase in the number of our correspondents, but, as yet, there is hardly a *beginning* of what ought to be; and if there be not a reformation, the editor will still be obliged to inflict his own articles upon the readers.

THE HORSE'S FOOT.—D. Appleton & Co., New York, have reprinted this work from the third London edition. It is a capital treatise. Every blacksmith in every village ought to have it; to read, ponder and digest its contents; and if then they were reduced to practice, every horse in the neighborhood would have occasion of thanks-giving.

Horse-shoeing, (like Dogberry's reading and writing,) comes by nature. I hardly ever met a man who had anything yet to learn. The shoe may fail, the horse go lame, or fall to stumbling, or travel with pain—this makes no difference, *the shoeing was well done.* There is a wholesome scorn of book-learning, among horse-shoe makers, as well as among other sorts of people.

TO CORRESPONDENTS.—Will our friends observe the great number of questions asked in this number?

A. asks questions touching the diseases of the horse; in respect to the mulberry tree; respecting raspberries. Please answer, ye who have the information.

H. asks information respecting manure; also touching the making of pork. Do not let the inquiries be neglected.

W. asks important information about seeding down grass-land; respecting hay-presses. There are several others who need this very information.

Now, gentlemen, we ask you to give us prompt answers.

TREES AND SHRUBS.—Our readers will not fail to derive information from the review of Emerson's Trees and Shrubs of Massachusetts, contained in this number, by J. T. P. It will be observed that Dr. Plummer adds such species as are found in the vicinity of Richmond, Wayne county, Ia.; and, occasionally, others found in this State. Very many of these which are not italicised would, without doubt, be found in other portions of the State. The judicious extracts from Emerson are full of instructive matter. It is high time that more attention was paid to our forests. One half of our people regard them in no other light than as an incumbrance to the soil. Already, in some portions of the State, wood and timber are becoming high-priced.

PUBLISHER'S NOTICE.

☞ The present number of the Farmer and Gardener has been delayed in consequence of not getting paper according to contract. We have now made such arrangements as will, in future, avoid such vexatious occurrences. This delay will throw the next number a little behind its proper time, after which its issue will be regular.

LEAVING PLANTS TO NATURE.

Plants growing freely in open soil and air, have every condition of health required by their structure and habits. When brought into the house, the arrangement of nature is violated, and, unless the vegetable structure and the laws of its growth are intimately known, it will be impossible to re-produce them artificially.

A plant removed from the open air may have the same roots and leaves, the same soil and food, the same light and moisture as its garden brethren, and yet be in a totally different world. Its roots instead of freely spreading, are packed into a petty dungeon, are subject to sudden alternations, liable to violent and rapid transitions between moisture and dryness, and to as extreme variations of temperature; its leaf, (*the* vital organ,) parched or flooded, choaked with dust, not moistened or cooled by dews or washed by showers; with oblique and often enfeebled light, is hardly able to maintain life in itself or in the plant, whose servant it is.

It is a piece of grave drollery under such circumstances, for men to propose, in an exigency, "*to leave a plant to Nature*" and to object to "taking the thing out *of the hand of Nature.*" Whenever any gardener shall find, growing in a state of absolute nature, a plant with an earthen pot on, with a roof over it, and no means of voluntary access to food or drink, we will become a convert to leaving plants, artificially so situated, to nature.

Men have no scruples about interrupting every natural condition of vegetation, and officiously proffering every assistance, so long as a plant thrives by it; it is only when they have prescribed wrong and the plant languishes; or when they have fulfilled the first few conditions, but are ignorant how to follow out the ultimate requirements, that, to hide ignorance, they praise nature. Plants that *are* left to nature are always taken care of; if they are taken from her, they who took them must themselves be Nature to them. No man can do this who practices upon a routine—a mere system of receipts. Like a quack doctor, he will save those that needed no help; and be as silent over those he loses as is the grave to which he consigns them.

Our object is, now, to call attention to a few important *natural* conditions of vegetable health, which every successful gardener must imitate.

1. It should be remembered that the roots of a plant, growing naturally, are in a medium of *higher* and more *regular* temperature, than that of the atmosphere. Parlor plants, and too often those in green houses, are managed without the slightest reference to this fact. The temperature of root and leaf are the same; or, the heat of the atmosphere is allowed to be greater than that of the soil; or worst of all, there is a perpetual variation in the relative temperatures. Where a gentle bottom heat can be applied, plants more nearly approach a natural condition. Where this cannot be had, *regularity* of temperature should be carefully secured. In plant houses, only carelesness or ignorance can be a reason for irregularity. In parlors it is different; since heat is introduced into them for personal comfort, and for the health of plants as a secondary consideration. In nature there is, as might be expected, a marked difference between the temperature of *day* and *night*. Too often in stove-heated rooms, the night air scarcely falls a degree from the average day-temperature.

2. Plants growing in open soil have advantages in respect to light which can only be approximated in artificial culture. The amount of food taken by a plant, should depend upon its power of healthy digestion. For plants digest their food as really as do animals, although by a different process. Light and heat decompose the water, and such parts of its elements or ingredients as are required by the plant are retained for its use; the remainder is given off by the leaf. In nature, a healthy plant draws up moisture in proportion to its own size, and also in proportion to the activity imparted to it by greater or less intensity of solar light. This self-regulation is no longer possible to a potted, housed plant; and the keeper must exercise a nice judgment in its behalf. Some persons economise time and water once for all, by deluging the plant, say once a week, drowning its roots, and filling its tissues with undigested food. If in a warm atmosphere, the plant goes into a rapid growth, but from want of sufficient light to decompose its excessive moisture, the stem and leaves are formed of mere cellular substance without fibre and uncarbonized. Long joints, white, watery, brittle, and sluggish, effeminate leaves, all betoken vegetable dropsy. The verdict should be "death, for want of light and by intemperate use of cold water." We describe only the extreme case of abuse. From this, there are regular degrees of bad management. Some, water every day, at any rate; some, every other day; some, by the state of the soil upon the surface. These are empirical rules. A truly careful gardener will not feed by any one sign, but by an attentive consideration of the whole plant; the degree of light which it has; the temperature in which it exists, by the condition of the soil, and by a careful heed to its *growth*. An experienced eye ought, in a very short time, to detect mismanagement, from the wood and leaf of a growing plant.

3. There is one circumstance in respect to the action of light, which we do not remember to have seen urged upon the attention. It is no matter of wonder that so few parlor plants are healthy, or beautiful. It is no wonder that beautiful plants, purchased from skillful florists are very soon nursed or neglected to death. We recollect hearing a lady bitterly complaining of a florist of whom she had bought several pots of fine roses. "I do believe he has some way of fixing them off for sale; some sort of medicine. Just as soon as any body else takes them they begin to fail. I never knew a rose from ——— which did well." Her plants, if they could have spoken, would have replied "Oh madam, we never see the sun until about noon, and then he breaks in fury upon us; sometimes we swim in water, and sometimes go thirsty for days. Our poor roots are dry half the time and heated, or they are bedrenched and chilled. We never were treated so before in our lives."

The light usually enters our dwellings not perpendicularly, but horizontally; it lacks the intensity of out-door light, and it usually strikes the plants in a manner which is injurious.

It will be observed that by far the greatest number of plants, growing freely, present to the sun, but one, and that the upper surface of their leaves. This is not an accidental position. If it be artificially reversed, the leaf, unless prevented, will speedily restore itself to its normal position. If restrained from doing this, in most cases the leaf will die. It is plain, then, that there is some reason in the structure of the leaf for presenting the upper rather than the under side to solar light.

A leaf, simple as it appears to be, is a compound organ, and not a little complex. That which appears to be a frame, viz: the spines and ribs which the eye traces, is a double system of veins; one belonging to the upper surface of the leaf, and taking its rise from the region of the pith or heart-wood, and connecting the upper surface of the leaf with the rising current of sap; the other, belonging to the under surface of the leaf, and connecting that portion of its vessels with the downward current of sap. This double system of veins is

filled up, not by a mere pulp, as it seems to the eye, but by a system of cells, arranged in conformity with the distinctive functions of the superior and inferior surfaces.

The cells of the upper surface are oblong and arranged endwise, so that their "long diameter is perpendicular to the surface." This presents the least possible surface of these cells to the light. The cells of the lower part of the leaf, are arranged loosely, so that numerous open spaces exist between them, and these spaces are filled with air and are in direct communication with the outward air, by means of mouths through the skin, technically called *stomates*. The lips of these mouths are formed with singular adaptation to the wants of the leaf. When moist, they contract in such a manner as to open the mouth: when dry they elongate so as to close, or nearly to close the opening. The fact that these stomates are upon the under side of the leaf is not to be unnoticed. For, although the upper surface is not entirely destitute of them, their presence seems almost accidental; and they may be said to be, for the most part, in all non-aquatic leaves, whose natural position is horizontal, peculiar to the under surface.

These remarks will enable us to give a reason for certain modes of treatment necessary to house-plants, often enjoined, but not always understood by those who practice the directions.

The necessity of light.—The whole plant depends upon the leaf for its life, and the leaf depends upon light for the performance of its functions. Not only is darkness incompatible with its life and health, but every degree of diminution of light from that which prevails in the open air, and to which the plant is accustomed, removes the plant one degree from the most favorable circumstances for health. It must be remembered, that a quantity of light may be sufficient for human eyes, and yet not enough to effect chemical changes in the leaf. The diffused light, the tempered half-light of our parlors is far too weak to answer the purposes of vegetation. In Europe, windows are frequently made, not a little on the principle show windows in shape, in which plants are admirably furnished with direct and full light, and protected from dust and too much evaporation by a glass door on the side next to the parlor,—a complete glass room being formed.

Direction of the light.—When plants are placed by the window, they are usually raised upon frames or tables to a considerable height, for several reasons; — that they may be out of harm's way, that they may be more easily reached and conveniently handled; that they may make a more conspicuous figure. The result often is, that by far the largest volume of light strikes the *under side* of the leaf; and although the light is not so strong as full solar rays upon out-door plants, so neither are the leaves as hardy as those grown in open air. There is no doubt that the rapid turning of leaves to the light, does not arise simply from the attraction of light, (whatever that attraction may be,) but also from efforts of the plant to reverse its leaves and present the upper and not the lower surface. It is on this account, well nigh impossible to maintain in full health very tall plants in parlors. Their height causes the light to strike them from below, instead of from above; and smaller plants are often injured for like reasons when, for the sake of effect, they are raised high up by the window. The nearer the light can be made to fall upon the top of the plant, the better, and each degree of declination from a vertical ray, is a degree on the downward scale of benefit.

GARDEN WORK FOR SPRING.

We now propose entering into our garden and noting everything which seems worthy of attention from the earliest moment after frost leaves the ground.

1. *Fences.*—It is important that the fence about your garden should be thoroughly examined and repaired. A picket, or board may be loose; a post may have decayed and needs to be replaced. Your neighbors have very enterprising hogs who will examine your fence for you if you do not anticipate them. If you are accustomed to whitewash, or to paint your enclosure, now is the time, unless you choose to defer the whitewashing till after spring rains.

2. *Hens, birds, &c.*—Early in the spring hens will trouble your garden in search of food, and will scratch the covering from tender roses, bulb-beds, &c. But after spading commences, if your garden be at all large, hens will seldom scratch, but will find food enough in newly spaded earth, and thus be of great benefit. We admit into our garden every summer fleets of hens, with their various Gen. Jacksons at their head, without any detriment to our beds or walks. Invite the birds. Let shooting be a felony. They will eat thousands of mischievous insects, and by this service and by their songs they will have earned their few cherries, &c., which they will take. Of the two, we could better spare our fruits than our birds.

3. *Damaged plants.*—Inspect your fruit trees, and if you were careless enough to leave upon them young and tender water-sprouts or side-shoots, during the winter, you cannot too soon prune them out. Many of these shoots will be found dead, and others, damaged by the cold, will breed disease upon the occurrence of warm weather. If general pruning is needed, it had better be deferred until the middle of May.

4. *Transplanting.*—If shrubs are to be taken up, roses to be planted out, vines to be set or removed, trees to be transplanted, let it be done as soon as the ground can be worked. In sandy loams transplanting may be performed the moment the soil is clear of frost; in stiff loams and clays, the soil must dry until it is friable. Beds of pie-plant may be formed among the first things. If you dressed your asparagus bed last fall, it may now be forked gently and the surface manure incorporated with the soil.

Your garden roses have, probably, sent up many suckers; let them be carefully taken up, and planted where you wish them; or distributed among those who love flowers but have not the means of procuring them. The prodigal beauty, the grateful odor, the prompt and superabundant return which flowers render back for a very little attention, ought to teach those who cultivate them, lessons of gratitude and of beneficence.

5. *Propagation of fruits, &c.*—Inspect all grafts which have been cut and stored away. Two little moisture or two much, are alike fatal to them. If kept in an atmosphere too cool to allow of evaporation from their tissues, there will be no need of wetting them atall. Apples, pears, and peaches may be root-grafted and laid in sand until settled weather allows them to be planted out. Young peach trees which have been budded and failed, and are too large now for budding, should be grubbed up, the roots saved and grafted. Beautiful peach trees may be had thus, and a year saved. Cuttings of currants, gooseberries, &c., may be planted, in nursery rows, or in the compartments where they are to grow. All the eyes or buds must be taken off from that part which goes beneath the ground; or they will throw

up suckers. A single stem only should be allowed to grow, and if not more than twelve or fifteen inches long, it will become quite strong enough to bear any top that *ought* to be formed.

6. *Trimming and Dividing.*—Half-hardy plants, more or less injured by cold, should not be pruned until they push their buds; else you will have no mark by which certainly to judge how far the injury extends. It is difficult to give general directions for pruning hardy garden roses. Severe cutting is a worse fault than its opposite. Old wood,—three or four years old—should be taken out. The side-shoots from which flowers are to appear, should be shortened to about six inches' length. If the rose has a multitude of stems, a portion of them should be taken out. Long and flexible shoots should be tied to a stake, trellis, or building, as the case may be.

If you wish to multiply your kinds, the trimmings of the rose may be cut into grafting lengths and grafted upon roots in the same way as is customary with the apple and the pear. (See vol. II, p. 34 and p. 39.)

Manure.—For corn and potatoes, green strawy manure may be profitably used; for culinary vegetables, ripe and old manure; for shrubs, flowers, &c., vegetable mold, and a portion of old friable barnyard manure is best. Decayed sods, leaves, vines, ashes, the refuse of the kitchen and especially of the wash-tub; all these should be annually incorporated with the garden soil. The soil may be made too rich in *some* ingredients, but it cannot be made absolutely too rich if the gardener supplies the right materials and in the right proportions. Mere stable manure may be injurious in over doses. But leaf-mold, ashes, soapsuds &c., are as really manure as is the compost heap or the contents of the barnyard. We are inclined to enter a special caution *against* manuring fruit trees, in any other way than by fresh earth. All stimulating manures, all substances which shall produce strong and rank growth are to be avoided, *in the West.* A treatment indispensible to the health of a pear orchard in New England, or to a peach orchard in New Jersey, would, with us, cause the one to die with blight and the other to cast its fruit, or rather to lose, every winter, its fruit buds.

We have every thing to fear from overgrowth. While our trees must not be reduced to a poverty which shall produce *sluggishness*, they must be kept from an activity which shall amount to a surfeit; and the medium is not easily attained or preserved.

COMMUNICATIONS.

EMERSON'S TREES AND SHRUBS OF MASSACHUSETTS.

As no authorized survey has been made of the forests of Indiana, it is impossible to make a satisfactory comparison of the trees of this State with those of Massachusetts. But as we bring the forests of that country under examination, we will use the results of a limited research within our own territory, and in some way designate the trees and shrubs which are found indigenous to our soil. Abundantly watered by rivers and small lakes, possessing lands clayey, alluvial, sandy, swampy, stony, rocky, level, rolling, hilly, dry, indeed almost of every quality but alpine and utterly sterile, there is no obvious reason why Indiana should not be able to produce every vegetable which the climate will permit to grow. From a cursory inspection of the report, I think I risk nothing in saying that the greater part of the trees and shrubs of Massachusetts can be found within the compass of a few square miles of this State.

Adopting the arrangement of our author, we begin with the

Pine Family, or Coniferæ.

"The soil natural to most of the pines is a sand formed originally by the crumbling or disintegration of the granitic rocks. These, in the forms of gneiss, mica slate and granite, are the prevailing rocks of Massachusetts; large portions of which, moreover, are overspread by the diluvium of sand formed from them. A large part of the surface was, therefore, and in many places still is, covered with forests of pine.

"The different species are adapted to the opposite extremities of moisture and dryness. The pitch pine flourishes on arid and parched sands; the white cedar thrives in swamps which are inundated almost through the year; the white pine prefers a situation moderately dry, but is often found in swamps; the red cedar and larch are found on rocky hills nearly destitute of soil, and the spruce and hemlock grow naturally in places inclined to moisture.

"The pines are most readily propagated by seed. In and near the pine forests, they are sown naturally by the opening of the cones when mature, and the dispersion of the winged seeds by the wind. As the seeds of most species are very light, they are often carried to a considerable distance, and their abundance is such, that a single tree is sufficient to furnish seed for many akers. A few pines scattered through a forest of deciduous trees, fill the ground with seed, in a series of years; so completely, that when the forest is cut down, it not unfrequently happens that a pine forest springs up in its place.

"If the trees are to be propagated artificially, the seed must be deposited on or near the surface; it should not be buried beneath, or, in case this is absolutely necessary, as when they are sown in open fields, the covering should not exceed the eighth of an inch, and should be light and loose. A soil and surface formed by the decay of the leaves of deciduous trees, is best, as it is precisely that in which the seed naturally vegetates. There are now, in every part of Massachusetts, large tracts of land which are too sterile, or too rough and rocky, to be cultivated to advantage, which might be easily sown with the different species of pine adapted to the various soils. The pitch pine would cover the sands, the red cedar and larch the rocky hills, the white cedar the swamps, and the hemlock and spruce and white pine all the regions between. Such tracts are usually overrun with low bushes, amongst which the seeds might be cast, and which would afford protection to the young plants against the winds, and the heat of the sun.

"All the pines require to be cultivated in large masses. They naturally grow thus, and although, when so growing, they seem to be extremely hardy, they do not thrive when solitary, but are parched by the sun, and stunted by the cold and wind. In masses, especially when large enough to cover several akers, they not only protect each other, but are the best possible nurses for the tender deciduous trees. For this purpose, they are extensively employed in all young plantations in England and France, where the cultivation of forest trees has received the greatest attention.

"The cones which are mature after one, two, or three seasons, may be gathered in the winter, as the scales do not usually open, to allow the seeds to escape, until the spring. Most of them, when perfectly dry, open spontaneously, and allow the seeds to be shaken out. In others they must be released by exposure to the sun or by force, either by cutting open the cone with a sharp instrument, or by beating, or by crushing in a bark mill. Two winged seeds are usually found above each scale.

"The best time for sowing the seeds is early in spring, as soon as the frost is out of the ground. If sown in autumn, they are liable to be devoured by mice and squirrels. If a few trees are to be provided for ornament or shade, the seeds may be sown in a prepared seed-bed of pulverized earth, and loosely covered to the depth of one-eighth or at most one-fourth of an inch. The bed should be in a sheltered situation, and the surface should be protected from the action of the wind and sun by loose branches, straw, or leaves. The soil of the seed-bed should be loamy or sandy, and, as in the case of the seed-beds of most other trees, it should be rich; as the thrift of the future tree, depends much upon the vigor of the first shoot. The practice in France is to sow them in somewhat rich bog earth, or a mixture of this with sand.* The seeds should be sown in rows for the convenience of keeping the plants free from weeds. They have been observed to come up in from thirty to fifty days, but, in some instances, do not make their appearance until the succeeding spring or even later.† After they have grown wo years in the seed-bed, they may be transplanted to a sheltered and fertile nursery, where they should remain at least one year before being removed to the spot where they are to stand.

† Loudon's Arboretum, 2132.

*Le Bon Jardinier, p. 978.

"Such is the course to be pursued when it is an object to have fine trees in the shortest time. But when poor, thin, rocky or sandy land is to be clothed with wood, and it is important to save the time and expense of the several transplantations, the seeds may be sown where the trees are intended to remain. They must be sown abundantly, as they are obnoxious to destruction by various enemies. On a rocky surface, they may be cast into the crevices of the rocks, or beneath the thin soil which covers them. On an open plain, they require protection, which may be found in various low bushes, such as sweet fern, or if sown on a waste, sterile land, they must be sown with the seeds of some quick-growing shrub, or tall grass, which shall protect them for two or three years. For the first two or three years, these plants are of slow growth; but after the fifth they grow very rapidly; and continue, in favorable situations, to make one or two feet annually, until they have reached twenty or thirty feet, and in the case of the taller species a much greater height. The root, in most species, penetrates at once, in the first or second year, to the depth of one or two feet, but never to a much greater depth.

"The evergreens are transplanted with less facility and success than most deciduous trees. Those intended for transplantation are, therefore, in the English nurseries, usually kept in pots, whereby they are prevented from throwing down a long root. All the pines are, however, successfully transplanted, if sufficient care be taken not to injure the roots nor heads, and to have a pit sufficiently large for all the roots to be fully spread, and *not to set them too deep*. The most difficult are the white and pitch pines. To insure success, these should be transplanted in winter; the pits having been formed and the plant to be moved having been surrounded by a circular trench in the previous autumn. In this way, the whole of the roots, with the frozen earth adhering, may be removed in a single ball, and set at once in the pit, and surrounded by loose earth kept ready for the purpose."

"The tenacity of life of the seeds is remarkable. They will remain for many years unchanged in the ground, protected by the coolness and deep shade of the forest above them. But when the forest is removed and the warmth of the sun admitted, they immediately vegetate."

Very few books at the command of our nurserymen and others interested, will furnish them with the information contained in the foregoing extended extracts.

The White Pine, or Pinus strobus,

is easily distinguished by its leaves being in fives and by its very long cones of loosely arranged scales. It is a tree of rapid growth, increasing at the rate of one to three feet annually. Its roots are almost incorruptible. A hundred year's exposure to the air, makes but little impression upon them.

The cones of the white pine do not ripen till the second year; they are then four to six inches long.

The Pitch Pine, or Pinus rigida

is known by its leaves being in threes, by its cones having sharp rigid scales, and by its excessively rough, very dark colored bark. This pine is supposed to be peculiar in throwing up sprouts from its stump and also from its fallen trunk. If we had such lands, it might be of service to know, that in fifty or sixty years, with this species "worthless barren sands may be covered with pines of a foot in diameter and forty or fifty feet high."

The Red, or Norway Pine, or Pinus resinòsa,

has its leaves in twos, and they are six or eight inches long. It may "be distinguished at a distance, by the greater size and length of the terminal brushes of leaves." The cones of both this and the pitch pine are two or three inches long, and do not mature till the end of the second or third season.

These are all the true pines found in Massachusetts; and although our nurseries testify that they will all flourish in our soil, I know of but one, the white pine, which is indigenous with us; this grows in the northern parts of our State.

Hemlock, or A'bies canadènsis.

"The hemlock spruce, or hemlock, as, throughout New England, it is almost universally called, is the most beautiful tree of the family. It is distinguished from all the other pines by the softness and delicacy of its tufted foliage; from the spruce by its slender tapering branchlets, and the smoothness of its limbs; and from the balsam fir by its small terminal cones, by the irregularity of its branches, and the gracefulness of its whole appearance.

"The young trees, by their numerous irregular branches, clothed with foliage of a delicate green, form a rich mass of verdure; and when, in the beginning of summer, each twig is terminated with a tuft of yellowish-green recent leaves, surmounting the darker green of the former year, the effect, as an object of beauty, is equalled by very few flowering shrubs, and far surpasses that produced by any other tree"

"The cones are eliptical and pointed, of a light brown color, three quarters of an inch long, and three-eighths broad, set upon the extremities of the smallest branches, and pendent in a short footstalk larger than the branchlet, of which it is the end. They consist of about twenty-five to thirty-five entire scales, rounded at the edge, the central ones protecting each two small seeds, which are furnished with wings in size and shape not unlike those of a common fly. The cones are mature in the autumn, and shed their seeds then and during the winter."

"The hemlock is at first of slow growth, and the delicate drooping plant looks, for two or three years, as if the sun or the wind would inevitably destroy it. Unprotected and single, it should never be exposed to their influence. In three or four years it lifts up its head, and at last grows, in favorable situations, with great rapidity."

The leaves of the hemlock are flat and thin. The bark is used for tanding.

Next follow the Black or Double Spruce (A'bies nìgra,(Single or White Spruce (A. alba,) Balsam Fir (Picea balsamifera,) Double Balsam Fir (P. Fràseri,) which the author saw "nowhere in the State, except on the top of Saddleback mountain." The Hacmatack (Larix americàna,) the American Arbor Vitæ (Thùya occidentalis,) White Cedar (Cupréssus thyòides,) Red Cedar (Juniperus virginiana,) the Juniper (Juniperus communis,) and the Yew or Ground Hemlock (Taxus canadènsis.)

Of these eleven members of the pine family, I suspect all are cultivated in our gardens and nurseries. The Hacmatack, under the name of Tamarack, is found covering some of our northern swamps. The Red Cedar enlivens the rocky banks of our streams. And how many of the others are aboriginal with us, I do not from observation know; but I should expect to find many of them. The *American Yew* is found in the western parts of the State.

Tamarack.

Our northern friends and the owners of swampy grounds irrecoverable by draining, may be profited by the following remarks of the Reporter. The tamarack is also called larch:

"The wood of the larch is very close-grained and compact, of a reddish or gray color, and remarkable for its weight, and its great strength and durability. In these respects, it is superior to all the other pines, and is surpassed only by the oak. Its durability is even superior to the oak itself, and in old vessels the timbers made of hacmatack have been found entirely sound, when those of white oak were completely decayed. On these accounts, it is preferred before all other woods, for knees, for beams, and for top timbers. The ship-builders make two varieties of the wood, the gray and the red, of which the latter is considered best. Its great hardness makes it valuable for steps in exposed situations; and its compactness gives it great power of resisting the action of fire, and renders it nearly incombustible, except when splintered. It would be better than any other wood in buildings intended to be fire-proof.

"On account of the very valuable qualities of the wood, the hacmatack would deserve to be extensively cultivated, and there are thousands of acres of cold and swampy land, where it was found naturally, which are now unproductive, and which might be clothed with it."

"On the continent of Europe, the larch is put to a great variety of uses. It is considered the best of the woods, both for the carpenter and joiner; casks are made of it, nearly incorruptible; water-pipes, shingles, vine-props. Its excellent properties for ship-building, as enumerated by Pontey, are its freedom from knots, its durability, its little liability to shrink, or to crack; its toughness; its beautiful color and its capability to receive polish; its incorruptibility, when exposed to alternations of moisture and dryness.

"The soils suitable for the larch, according to Matthew, (as quoted by Loudon, p. 2376,) are sound rock, with a covering of loam, particularly when the rock is jagged or cleft; gravel, not ferruginous, in which water does not stagnate, even though nearly bare of vegetable mould; firm, dry clays, and sound, brown loam; all very rough ground, particularly ravines. The most desirable situation is, where the roots will neither be drowned by stagnant water in winter, nor parched by drouth in summer."*

* *A very valuable account of everything relating to the whole cultivation, management and uses of the larch, is found in Loudon's Arboretum, pp. 2353 to 2399.*

The *White Cedar*, often taken for the American Arbor vitæ, is thus recommended:

"The white cedar has so many excellent qualities, that, in an industrious and manufacturing community, it can never cease to be valuable. It is one of those trees, therefore, which ought to be cultivated in great numbers, to supply the wants of posterity. Fortunately, it is one which can be cultivated with less trouble, and at less expense, than any other forest tree, and it conflicts with no other. There are large tracts of cold, swampy land, which could be drained only at great expense, which might, in the present state, be made to produce valuable forests of this tree. It would be only necessary to gather the seed from the forests already growing, and cast it abundantly, in the fall of the year, upon the surface of the ground or water, in the morasses and swamps intended for this use. In six or eighteen months, the seeds will vegetate. In a few years, thinnings might be made, which, for enclosures alone, would pay a high rate of interest upon the value of the land, and of the labor bestowed."

The *Red Cedar*, considered by eminent authorities as identical with the European Savin, besides the ordinary uses of it, has been employed for fencing. The author quotes a writer on this subject, as follows:

'"The cedar is peculiarly fitted for the purpose of live fences. It throws out boughs near the ground, pliant and capable of being woven into any form. They gradually, however, become stiff. Clipping will make cedar hedges extremely thick. No animal will injure them by browsing. Manured and cultivated, they come rapidly to perfection. The plants are frequently to be found in great abundance without the trouble of raising them. As an evergreen, they are preferable to deciduous plants; and they live better than any young trees I have ever tried.' They should be planted with a sod taken up of sufficient size to prevent injury to the roots, between December and the middle of April, on each side of a fence, the plants and rows being each two feet apart, and each plant in one row opposite the centre of the interval between two successive plants in the other row. 'They should be topped at a foot high, and not suffered to gain more than three or four inches yearly in height, such boughs excepted as can be worked into the fence at the ground. Of these, great use may be made towards thickening the hedge, by bending them to the ground, and covering them well with earth in the middle, leaving them growing to the stem and their extremities exposed. Thus they invariably take root and fill up gaps.'"

Cedar apples, which are commonly supposed to have an insect origin, (but erroneously,)

"Make their appearance, according to Schweinitz, from whom this account is obtained, on the most delicate branches of the cedar, of the size of the head of a pin, and gradually increase to the diameter of one or two inches, still traversed by the unaltered branch. Whilst fresh and young, their substance is like that of an unripe apple, and of a whitish-green color within. This green tint soon changes to a tawny orange, and a few whitish fibres are observed radiating and branching from the base. They are covered with a bark of a brown purplish lilac color, which is juiceless, like the peel of an apple. The whole surface is dotted with small polygonal, usually pentagonal, depressions, which are at first plane, afterwards slightly projecting in the centre. These projecting centres at last burst, and there issue forth from each, in moist weather, slender, gelatinous, strap-like '*sporidochia*, about an inch in length, of the most beautiful orange color, adorning, in the course of a single spring night, the whole tree, as it were, with the richest crop of ripe oranges. If wet weather continues for many days, it remains in this state till the ligules melt away. Under the influence of the sun, however, they soon dry up, and never revive.' This gelatinous substance is composed of the lengthened sporidia, spore-vessels, or seed-vessels, of a minute fungus, called by Schweinitz *Podisoma macropus*. Dr. J. Wyman has discovered one of these fungi so constantly near the lengthened acerose leaves, mentioned above, that he conceives there must be some connection between them, and that the fungus is, perhaps, the cause of the peculiarity in the length and shape of the leaf. I believe, however, that acerose leaves occur on perfectly healthy branches. The cedar apples continue to increase until the sporidochia burst forth; but after this evolution has taken place, they cease to grow, and begin to become hard and dry. They last a year. When dry and old they are of a spongy, fibrous texture, finally almost woody, as if formed of fibres radiating from the base."

The Juniper.

"Seldom rises more than a foot or two from the ground, but spreads extensively in every direction, sometimes covering several akers of the surface of dry rocky hills, and giving great trouble to the cultivator, as it is very difficult to extirpate. It is commonly destroyed by burning, and little use is made of the wood."

Some cuttings of Juniper, (cultivated here and extensively sold as Savin,) were planted ten or twelve years ago, and have grown so vigorously, that they are already four or five feet high; and its bright dark green, and luxuriant branches form quite ornamental patches upon the grounds.

We have now followed the author through the cone-bearing trees; and shall next proceed to the trees which bear flowers in the form of aments and catkins, those caterpillar-looking things which drop from the walnut, lombardy poplar, &c. Such are called

AMENTACEOUS PLANTS. AMENTACEÆ.

"In England, whose oak forests are now one of the sources of national wealth and naval supremacy, the tree was once prized only for its acorns, which were the chief support of those large herds of swine, whose flesh formed so considerable a part of the food of the Saxons. 'Woods of old,' says Burnett,* 'were valued according to the number of hogs they could fatten, and so rigidly were the forest lands surveyed, that in ancient records, such as the Doomes-day Book, woods were mentioned of a 'single hog.' The right of feeding hogs in woods, called *Pannage*, formed, some centuries ago, one of the most valuable kinds of property. With this right monasteries were endowed, and it often constituted the dowry of the daughters of the Saxon kings.'"

The author very truly says:

"In the several species of the same group, there is a striking similarity, and I have gathered from the same stock, leaves which would seem to belong to several different species. Indeed, the nearly allied species are not to be distinguished by their leaves alone, viewed at any one season."

The acorn has a very transient vitality. "Few of them will germinate after having been kept a year."

Oaks.

The following is a list of oaks found in all Massachusetts, (and some in but one or two localities.) I shall italicise such as I have found in my botanical walks about Richmond, and add some growing in the same limited circle, which appear not to have been found in that State.

Quercus	*alba*,	White Oak.
"	*bicolar*,	Swamp White Oak.
"	*castánea*,	Chesnut Oak.
"	*chinquapin*,	Chincapin Oak.
"	*coccinea*,	Scarlet Oak.
"	*elicipólia*,	Bear Oak.
"	*macrocárpa*,	Overcup White Oak.
"	*montána*,	Rock Chesnut Oak.
"	*obtusiloba*,	Post Oak.
"	*prinus*,	Swamp Chesnut Oak.
"	*rubra*,	Red Oak.
"	*tinctoria*,	Quercitron Oak.
To this add in favor of Richmond,		
"	*imbricaria*,	Laurel Oak.
"	*nigra*,	Black Jack.
"	*palustris*,	Pin Oak.
"	*aquatica*,	Water Oak.

The first, second, fifth, seventh, ninth, tenth, eleventh, thirteenth and fifteenth, are much the most common species in this vicinity.

Emerson gives as the dimensions of the leaves of the *Over-cup Oak:* "six or seven inches long, and three or four wide." I have measured them when fallen from our trees, and have found them much larger: one now in my Folium is fourteen and a half, exclusive of the petiole, by eight and a fourth inches. Strewed upon the ground, these leaves have a striking effect upon the eye in the midst of the diminutive beech and other foliage.

"The acorns are very large, and enclosed for more than half their length, in a cup covered with very prominent scales, and bordered by a conspicuous fringe of long, flexible threads. Michaux says that these threads do not appear when the tree is in the midst of a forest, or when the summers are not very warm."

The Beech. Fagus sylvatica.

This is the only species found in the United States; and the author can give us westerns but little information respecting it. The lower branches of the New England tree "gradually become horizontal." In this State, I have almost equally seen them, *drooping* at every angle, from 90°,

* *Outlines*, 532.

45°, 30°, 20°, down to even a parallel with the trunk. I have accounted for this, by supposing that in the dense foliage of our trees, the leaves could in no other way present their upper surfaces to the action of the light. Another remarkable characteristic of our beech, is not noticed by the author, as a feature in the New England tree: I mean the fan-like expansion of its branches, extending many feet, and giving to the tree a peculiar imbricated appearance.

The writer says the "tree is wanting in gracefulness:" and it is no wonder if the beech-tired eye of an Indianian, should see no comeliness in it; but I have nevertheless marked the spot where, here and there, grows a beech, truly attractive for the elegance of its proportions, and its foliage; especially when waving its plume-like branches in long sweeps in the passing breeze.

"The leaves were formerly used in Britain, and are, to this day, in some parts of Europe, for filling beds. (Loudon's Arboretum, p. 1963.) Evelyn says that 'its very leaves, which make a natural and most agreeable canopy all the summer, being gathered about the fall, and somewhat before they are much frost-bitten, afford the best and the easiest mattresses in the world, to lay under our quilts, instead of straw; because, besides their tenderness and loose-lying together, they continue sweet for seven or eight years; before which time, straw becomes musty and hard: they are thus used by divers persons of quality in Dauphine; and, in Switzerland, I have sometimes lain on them to my very great refreshment. So as of this tree it may properly be said,

'Silva domus, cubilia frondes.'—*Juv.*

'The wood's an house, the leaves a bed.'

Sylva, Hunter's ed., p. 141-2.

"'We can,' says Sir Thomas Dick Lauder, after quoting this passage, 'from our own experience, bear testimony to the truth of what Evelyn says here, as to the excellence of beech leaves for mattresses. We used always to think that the most luxurious and refreshing bed was that which prevails universally in Italy, and which consists of an absolute pile of mattresses filled with the elastic spathe of the Indian corn; which beds have the advantage of being soft, as well as elastic; and we have always found the sleep enjoyed on them to be peculiarly sound and restorative. But the beds made of beech leaves are really no whit behind them in these qualities, whilst the fragrant smell of green tea, which the leaves retain, is most gratifying. The objection to them is the slight crackling noise which the leaves occasion, as the individual turns in bed; but this is no inconvenience at all, or, if so in any degree, it is an inconvenience which is much overbalanced by the advantages of this most luxuriant couch.'"

I can adopt the subjoined language of the Report verbatim, after changing "Massachusetts" to Indiana.

"I have been unable to find more than one kind of beech in Massachusetts. The workers in the wood speak commonly of the white and the red; and I have often gone in pursuit of the varieties. But I have not succeeded in detecting any specific difference, and believe the appearance in the wood, which has given rise to these names, to be produced by the more or less rapid maturation of the wood. The heart wood is of a reddish hue. Where it predominates, the log is called red beech. Timber, in which the white sap wood is most conspicuous, is called white beech.

"The beech is said never to be struck by lightning. In travelling through a forest country, many oaks may be found which have been so struck, but never a beech."

The American Chesnut,

is considered the same as the Spanish chesnut of Europe. It is found in the southern portions of this State.

"The chestnut flourishes on rocky hills, where there is no great depth of soil, on a surface difficult of tillage, and fit only for pasture or forest."

"The mode of cultivating the chestnut is similar to that for the oak. It is successfully raised from the nuts, which, whether they are to be sent to a distance, or to be reserved for eating, should be gathered in the sunshine and exposed several days to the direct days of the sun. The chestnut may also be grafted in any of the modes in use for other trees."

The American Hazel,

is "readily propagated by sowing the nuts, by suckers and by layers. It abounds in some portions of the northern half of our State; and probably elsewhere in it. The *Beaked Hazel* I think I have not seen here.

The other amentaceous plants of Massachusetts are given below: as before, such as are italicized are found within a small circle about Richmond.

American Hornbeam,	*Carpinus americàna.*
" Hop "	*ostrya virginica.*
Butternut,	*Juglans cinèrea.*
Black Walnut,	" *nigra.*
Shell-bark Hickory,	*cárya alba.*
Mockernut, "	" *tomentosa.*
Pignut "	" *porcina.*
Bitternut "	" *amara.*

(The vicinity of Richmond claims one more:

Sulcated Hickory,	*Carya Sulcata.*) (Nuttal.)
Black Birch,	Bétula lènta.
Yellow "	" excelsa.
Red "	" nigra.
Canoe "	" papyrácea.
White "	" populifolia.
Dwarf "	" Glandulosa.
Common Alder,	*Almus serrulata.*
Speckled "	" incàna.
Sweet Gale,	Myrica gale.
Wax Myrtle,	" cerífera.
Sweet Fern,	Comptònia asplenifòlia.
Button Wood,	*Platanus occidentàlis.*
Large Poplar,	*Pópulus grandidentàta.*
American Aspen,	" *tremuliformis.*
River Poplar,	" *levigàta.*
Necklace Poplar	" *monilífera.*
Sage Willow,	*Salix tristis.*
Cone-bearing Willow,	*Salix conífera.*
Two-colored "	" *discolor.*
Wooly-headed Swamp do.	" *eriocephala.*
Prinos-like Willow,	" *prinoides.* *
Dense-flowered Early do.	" *crassa.* *
Tender Willow,	" *sensitiva.*
Gray "	" grisea.
Glossy "	" *lucida.*
Black "	" *nigra.*
Pursh's "	" Purshiàna.
Beaked "	" rostrata.
Heart-leaved Willow,	" cordàta.
Stiff-leaved "	" rigida.
Torrey's "	" Torreyàna.

To these we must add on behalf of Richmond,

Gale-leaf Willow,	*Salix Myricoides.*
Water Poplar,	*Pópulus angulàta.*
Heart-leaved Poplar,	" *cándicans.*

The last of the amentaceous plants named by the author, is also found here:

Red Mulberry,	*Morus rubra.*

[*To be continued.*]

SWEET POTATOES.

Friend Beecher: — In reading the last number of the Western Farmer and Gardener, I see information asked for by some correspondent of the west, concerning the best method to keep sweet potatoes through the winter. I will just say to Enquirer, what three winters' experience has proved to me. The first to be done is, to get potatoes of good quality, such as have been raised on dry soil inclined to be rather sandy and warm. Secondly; they should be dug before much frost has visited them. Thirdly; they should be harvested in a dry, warm day, after they are dug from the hill; they should not be wet either by dew, frost, or rain. When gathered, they should be spread on an open floor in a room that can be well ventilated, during the warm part of the day, for three or four days, until they are slightly withered, then pack in dry sand, in not too large boxes, where the room can be kept warm by the heat of the fire and well ventilated during warm and dry days. The temperature of the room should never be below 35° nor above 45° to 50°. Below 35° will produce a cold, damp, rot, while above 45° or 50° will stimulate and cause them to sprout. In case there should be any accumulation of mois-

* *All these are but one species, in the Reporter's opinion.*

ture on the boxes, which is not unfrequently the case after a cold spell of weather, during which time we have to keep the room close for fear of frost, we should be very careful to ventilate the room as soon as possible after a very cold spell of weather. When I gathered my crop of potatoes last season, I had near 150 bushels, a greater portion of which I have disposed of during the fall and winter. I have about twenty-five or thirty bushels yet remaining on hand for my own use for sprouting.

Since my potatoes were packed down in the fall, I have found but two that were entirely rotten; the ends of a few others slightly decayed. My whole stock, now on hand, are nearly as bright as when first dug from the hill. I have had good success two years out of three, that being the length of time since I first engaged in the business. Last season I lost about eight bushels during fall and winter. My crop was about the same as this season. I am of the opinion that I gathered them last season when the ground was too wet, and the weather remained cold and damp for some days after they were dug, which rendered it difficult to get them in a good situation to pack to prevent them from taking a wet rot, I also tried keeping some in leaves; that did not do well. This season I put up some in chips from the turner's lathe; about three bushels, which have done very well so far, although I doubt the general utility of that method. I fear they will be liable to accumulate moisture and then heat.

The patent right spoken of, I have but little knowledge about it. Some have informed me they done very well, while others have been an entire failure, with large amounts, probably owing to bad management. It requires practice and judgment, to keep potatoes in a good and healthy condition. I write only the result of my own experience. I would be pleased to hear from some of our patent-right potato growers. Probably friend Silvers will let us hear something about his succes, as he is an old experienced hand at potato-raising, and has tried the new patent.

My crop of Irish potatoes entirely rotted with the disease, so destructive to the tuber in the old country, the particulars of which I published in our paper here. G. MENDENHALL.

WILLOW GARDEN, Richmond, Ia., 1st mo., 8th, 1847.

CULTURE OF POTATOES.

POTATO CREEK, Clinton County, Ia.,
March 10th, 1847.

Mr. Editor: — I see in the first number of the present volume of the Farmer and Gardener, an enquiry respecting the best mode of cultivating the potato, and a request that farmers would send in their methods.

In the first place, the ground must be pulverized very deep, and if it could be plowed twice, so much the better, as the ground by so doing will stand a drouth much better than if plowed but once, and it will be much easier to cultivate. If the object is to obtain the greatest amount of potatoes from a certain amount of ground, I think that drilling is the best plan, as by this process, there can be much more planted on the same ground.

My mode is to furrow out my ground middling deep, if the ground is not inclined to be wet. Then I take my largest potatoes and cut them in from four to eight pieces, according to the size of the popato, so as to obtain from two to three stalks in each hill. If there is more, they ought to be pulled up, for if left in the hill they will cause the potatoes to be quite small. There are a great many farmers in the west who waste their seed by planting too much in the hill, and then letting all stand that comes up; others plant their smallest seed, which is nearly as bad.

I then drop the pieces about eighteen or twenty inches apart in the row, then cover them quite deep with the hoe or plow, but the former I prefer. As soon as the potatoes begin to make their appearance through the ground, go over the whole ground, potatoes and all, with a harrow. As soon as they are large enough, you may plow them and give them a good hoeing, being careful not to hill them high, as this will cause the rain all to run off from the popatoes and they will suffer more from a drouth. If the ground is not very foul, once hoeing is sufficient, as every time they are hoed after they begin to blossom causes them to set new potatoes and retards the growth of the first setting.

WM. B. BROADRICK.

Mr. Beecher:—

SIR, I regret exceedingly that necessity has compelled you to change the appearance of the Farmer and Gardener. The two volumes, already published, have been welcome visitors, at my house; and, I had fondly anticipated its publication, for years to come, at least semi-monthly, or weekly, if possible. But being disappointed in my expectations, thus far, I still feel a hope that you may receive encouragement sufficient to be able to continue its publication, in some form or other.

It does seem passingly strange to me, that the citizens of Indiana (a majority of whom are engaged in *agriculture*,) should fail to give the necessary support, to insure the pubcation of at least one *agricultural paper*.

The march of improvement, appears to be onward, and unless we have some means of receiving intelligence, we shall certainly linger much behind the *times*. I confess, it has always been my pride to try and sustain home productions; hence, when I have been solicited to subscribe for eastern publications, because they were *cheap*, I have generally remarked that I thought it was to our interest to sustain our own County and State papers.

I should be pleased to see a more general correspondence from all portions of the State, and as far as possible, or prudent, each communication signed by the author's name.

The winter, thus far, has had a very deleterious effect upon the wheat, in Franklin county, and unless the spring is favorable, all the late sown will certainly be very thin on the ground.

Yours respectfully, JOHN P. BRADY.

SCAFFOLD PRAIRIE, Green Co., March 4, 1847.

Liniment,—Suggestions, &c.—There is on page 240, vol. 2, Farmer and Gardener, a recipe for a liniment taken from the Albany Cultivator, which contains a material error, which seems of sufficient magnitude to correct: Instead of a half ounce spirits hartshorn (aqua ammonia) it should be half a pint, to correspond with the other proportions. This is a truly valuable liniment when properly prepared, and applicable to *many* cases of sprains, bruises, and wounds external and (not) internal, of man or beast. Old sprains, bruises, indurations and indolent tumors will, very generally, be benefitted by a stimulating treatment like the application of this liniment; but fresh wounds should be treated by rest and cooling applications till inflammation has subrided, be they on man or beast. The idea of a cure-all liniment or a cure-all any thing else, is too absurd to prevail in the same age with—the Farmer and Gardener. I have been acquainted with the above preparation many years, under the title of "horse liniment;" and properly used, it is an excellent preparation.

I have a suggestion to make which may or may not interest you. As I know not to whom else to make it, I make it to you. Might not a State Botanical Association be made profitable or of public utility? There is a growing interest throughout the country in the science of botany. Much time and money are expended in search of rare botanic specimens. There are doubtless many eminent botanists in the State, who have large herbariums, who could be of essential service to those who are just beginning in the science; and one botanist might, in one part of the State, collect specimens at his own door which another might search for a twelve-month, and not find. By association, by having a common depository, to which all might contribute their mite, and receive in return for their own herbarium specimens from distant parts of the State or of different States, the labor of making a valuable collection would be materially lessened and the cause of science subserved. I know not whether you take an interest in this subject. I will therefore add nothing more at present. A. G. S.

[A system of exchanges would be highly useful: whether it could be done better by a society, than by private correspondence, is doubtful. In a new State, there is so little of leisure to any one, and especially to any that are inclined to industry, that it is difficult to sustain even such societies as are *necessary*. But as time multiplies our population, wealth, and literary leisure, such societies will spring up and thrive.—ED.

CARE OF SHEEP.

I place in the lot, where my sheep can have free access at all times, a trough which is kept constantly supplied with salt and unleached ashes, about one-third of the latter to two-thirds of the former. There is no danger of their eating too much. If your sheep have a cough, a little sulphur mixed with the salt, or tar placed in the bottom of the trough, is very good. Some may object to this mode on account of waste from rains. This is easily remedied by putting the trough under a shed, which every farmer that has sheep ought to have, to protect them from the chilling rains and snow of our western winters. Such protection will conduce greatly to their health; the wool also is much better by being kept dry. There is no animal much easier hurt by being exposed to the cold storms of winter than sheep. When their wool is wet and freezes, they are liable to take cold, which is one great reason why so many die in the west before they get of much age. If you have no boards or shingles handy, straw is a very good substitute, and is easily got by every farmer. They should also have plenty of grain with their hay or fodder; corn of sheaf-oats is, I believe, the best grain that they can have.

Some farmers say that corn is injurious to sheep and makes them lose their wool. Now, brother farmers, this is all a mistake, I know from experience. The reason of their losing it is this: They have no grain, or but very little thro' the forepart of the winter, and they are suffered to get poor; then towards spring, they are fed pretty freely with corn, which causes them to commence thriving, and like all other animals they begin to shed their coats. But if they are kept fat *all the time*, there is no danger of their losing any wool atall; and by this means, the farmer can defer shearing his sheep till the proper season for such business; which, I think, for the west, is about the last of May or first of June.

I have been often very much pained at seeing flocks stripped of their clothing as early as the first of April, and then turned out to shirk for themselves through all the cold storms. Their owners soon raise the cry "that it is not healthy for sheep in the west;" and no wonder, after such treatment, that the sudden change, in such cool weather, causes them to take cold, and terminates in what is sometimes called "the rot." If it was not that we are not to return evil for evil, I would say that such farmers ought to be served the same way. WM. B. BRODRICK.

POTATO CREEK, Clinton County, Ia.

BEES AND BEE-HIVES.

In 24th number, vol. 2d, Farmer and Gardener, I find an article on bees, by T. B. Miner, which made me think that maybe sixteen years experience of my own might be of some benefit to others. Since the moths' appearance in this region, about thirteen years ago, I have tried various experiments, and have found none to succeed as well as having the hives perfectly tight and raising them about the third of an inch from the board on which they stand, by blocks or stones under each corner of the hive, and taking the honey by placing a small box on the top.

But I think that I have invented a new and better plan; but as I have had but one year's trial of it, I cannot speak with certainty; but I will give you a sketch of it with a drawing, and if you think the plan good, you may give it to the public, as it is not p-a-t-e-n-t-e-d; (I hate this word.) First, the stand is made of good seasoned boards one inch thick, consisting of two side-pieces twelve inches wide and ten inches high, the bottom is ten inches wide, nailed between the sides so that the back end is level with the sides, and the front end five and a half inches lower and projecting two inches in front; the front-piece five inches wide and nailed between the sides so as to leave half an inch the whole width of the front of the stand for the bees to pass, and making the top perfectly level, and by cutting a semicircle in the lower part of the sides form legs. The hives are made ten inches square in the clear, and of inch boards, so as to correspond exactly with the stand; the hives are made with three slats across the top, leaving a space of half an inch between each; the slats should go inside of the hive, and a cover half an inch thick put on with screws, on the hive in which the bees are first put; then, as soon as the bees have filled the first hive, raise it, put another under it on the stand, without any cover except the slats, and when that is full, put under a third, and when that is full, take off the top one, empty it, take off the cover, put it on the next, and put the empty one under again, &c. The hive should have a small square of glass in the back, with a shutter, so that you can see when they are full. The stand and hives are to be well painted. BENJ. DENNIS.

OHIO COUNTY, Ia.

FEBRUARY 2d, 1847.

Mr. Beecher: —Sir, but three days ago I received the 24th number of the Western Farmer and Gardener, and being unable to induce any of my neighbors to subscribe to your paper, I therefore herein send you one dollar for two numbers, so that I can have one to lend, and see if thereby I can get them enough interested to subscribe.

BLUE-GRASS &C.—QUESTION.— I am a farmer and always have been from my boyhood, but never availed myself of the experience of others out of my own acquaintance, until within the last five years, by the perusal of agricultural books, papers, &c. As you beg for communications and questions, permit me to ask the following: Will Kentucky blue-grass succeed on oak land somewhat rolling and considerably worn, and the best time and manner of sowing?

As I have never discovered that you have any correspondent in Ohio county, in which I live, I will inform you that we have had but very little of the potato rot here, as far as I have been able to ascertain, but our apples were nearly destroyed by the rot. Our wheat looked promising in the fall, except being some hurt by the fly; but now it is the worst winter-killed, to appearance, that it has been for many years. BENJ. DENNIS.

WASTE OF MANURE---PORK.

PERU, IA., March 10, 1847.

Mr. Editor: —I am trying to farm a small tract of land half a mile from this village, and wish to turn all the labor employed to the best account; have hauled some 300 loads of manure from the stables in town, at a cost of 17½ cents per load when delivered in piles in the field; besides fifty to sixty loads per year, made at home. And I wish to know if stable manure, hauled from the heap in autumn and winter, and left in piles in the field till spring, loses any of its fertilizing properties; and if so, what ingredients are lost?

I wish also to know whether a given amount of pork can be made with the least corn by keeping the hog in growing condition *only* till his growth is attained and then fattened, or by keeping him fat from birth? H.

HAY AND HAY PRESSES.

MARCH 15th, 1847.

Dear Sir:—I have determined in conjunction with two others of your subscribers in this place, to engage in the improvement and cultivation of a hay farm on Lost Creek, twelve miles east of this. We intend this fall to sow about 100 akers; that is a fined fact. Now you will confer a favor on us by answering the following question to the best of your knowledge, information, and belief:

1. What amount of timothy seed ought to be sown per aker, on fresh soil, moist clay bottom with a measureably good surface of vegetable mold, and what on same kind of soil which has been some years in cultivation?

2. What are the different kinds of hay-presses; the cost of each; the manner in which they are made, and the most approved size of the bales of hay; also the size of the timbers and the screw used in pressing it; and what length of time after harvest should hay remain in the mow or stack before it should be baled? Yours respectfully, W.

PLOWING UNDER CORNSTALKS---QUESTIONS.

"Send on your questions and we will see that they are answered."—*Farmer and Gardener.*

How do farmers in your region dispose of their cornstalks? burn or plow under? You say better to burn them; but I think your reasoning scarcely conclusive. You are deceived, too, as regards the effect of raising corn year after year on the same ground, (speaking of the Laughrey bot-

toms.) Instead of making the ground very loose, it has a tendency to make it very hard; so much so, that I have known it impossible to break it atall, when it was not broke early, (it is often very clody, at best,) and after it is broke, heavy rains succeeded by hot suns, literally bakes the ground, sometimes preventing the corn from coming up. Now, will not the plowing under of the stalks have a tendency to make the ground more loose, mitigating, in some degree, the effects of our severe drouths? And why will they not add as much to the fertility of the soil in this way, as by burning them; seeing that burning destroys a part of the vegetable matter in the soil? It is said, stalks may be cut in two with a common cutting-knife, and then cut off at the ground, and plowed under without much difficulty.

Is there any way to make the non-bearers of the common mulberry tree bear? The bearing trees sometimes become non-bearers; why should not barren ones be made to bear? I have one that has borne from quite a switch, up to last year; that year it bore only long pendulous blossoms. How can the bearers be distinguished from the non-bearers, when they are small? I have found the bark and leaves no certain mark.

What is the best location for a raspberry row? The young shoots are apt to get partially killed by the sun, when fairly exposed to it. Would they do well on the north side of a wall?

Big-head — Blind Teeth. — Will you, or some of your subscribers, give us some information about the cause of the disease in the horse, known as big-head, nose-evil, or kings-evil? and give a remedy, if one is known? Blind teeth, are thought to cause it, by some, and they certainly affect the eyes. What can cause these teeth, which many horses never have, and how do they affect the eyes? *Fhumps.* Does any one know a permanent cure for this complaint of the horse?

A. P.

[Our judgment in the matter of corn-lands, was formed upon what we had heard and seen; and it seems that it was a partial view, as applied to all bottom-lands. We stand corrected. The best remedy for raspberries is not a change of *place* but of *varieties* The Antwerps are too tender, for our climate, i. e., for its excessive changeableness and violent extremes. Raspberries, by a fence, are apt to become a mere thicket; and being uncultivated and the soil uncleansed, they suffer by neglect. However, if properly cared for, they will do well upon such an exposure. We wish to see the Franconia—a French variety—and the Fastolf, an English sort, tried. They are of high reputation and said to be hardy. They can be procured in Cincinnati, at least the Fastolf, which we, last season, obtained at Mr. Ernst's nurseries.—*Ed.*]

EXTRACTS FROM LIEBIG--Continued.

Liebig, under the head "Art of Culture," makes the following remarks touching the annual maturation of woody-plants: "After August the leaves form no more wood; all the carbonic acid which the plants now absorb is employed for the production of nutritive matter for the following year: instead of woody fibre, starch is formed, and is diffused through every part of the plant by the autumnal sap. * * A very early winter, or sudden change of temperature, prevents the formation of this provision for the following year; the wood, as in the case of the vine-stock, does not ripen, and its growth is in the next year very limited:" (or he might have added, in many instances, its life is entirely destroyed.)

Starch, thus situated, we have reason to believe is, in the succeeding spring, changed into sugar; but this sugar serves no other purpose, it is imagined, than to give an impetus to the dormant buds: this done, the leaves unfold themselves and begin to perform their legitimate functions; there is no longer need of this accumulated nutriment, and it is, therefore, disseminated among the leaves and young shoots Almost all, perhaps all, seeds in greater or smaller quantities contain starch, which, during germination, is converted into sugar, and in this form serves as food for the young plant until its organs are sufficiently developed to abstract its nourishment from other and different sources. It is known, too, that in many instances, freezing, as well as germination, is capable of converting starch thus circumstanced, into sugar. Now, let us suppose that hard frosts have caught a pear tree, for example, immatured, or, in other words, at the very time that the starch, above alluded to, is being deposited, what consequences might we expect? The vital energies of the tree are, to a considerable extent, impaired; and though the starch be in the early spring changed into sugar, a want of laborating power prevents this sugar from being disposed of, as in a healthy tree, the consequence of which is, there is formed within the tree's proper vessels a *ferment*, which proves to be a contagious poison. This is probably, the most plausible explanation that can be given respecting the cause of "pear blight." The peach, plum, and, indeed, many other trees appear to suffer in an equal degree with the pear; but it would seem, that in them, inherent powers of life, are most often able to make reparation for the devastations of winter. Our indigenous paupau is, to all appearances, frequently destroyed by an untimely frost, yet almost invariably it is able to repair itself. Experience, it is to be hoped, will in time enable our horticulturists to surmount many of the difficulties which now exist in the way of the successful cultivation of the more tender fruits. Improved native varieties, sufficiently hardy to withstand the rigor of our seasons, should be sought.

On the alternation of crops, the Professor makes many excellent observations, many of which are of great moment to the farmer. A few are all that can be noticed in this place. "The reason," says he, "why this interchange of crops is so advantageous—the principles which regulate this part of agriculture are, therefore, the artificial production of humus, (vegetable mold,) and the cultivation of different kinds of plants upon the same field, in such an order of succession, that each shall extract only certain components of the soil, while it leaves behind or restores that which a second or third species of plant may require for its growth and perfect development." Upon a correct understanding of these "principles" in a great measure depend the success of the art of culture. All farmers, to some extent, practice a rotation of crops. One year a field is tended in corn, the next it is sown down in wheat. Wherefore is this done? Why not continue corn or wheat on the same soil for a lifetime? Because, one, two, or three crops of corn or wheat successively taken from the same soil, extracts therefrom, in the form of leaves, straw, and grain, an amount of inorganic matters incompatible with a fair yield. Such a course, in a great measure, exhausts the soil of the salts which it contains; and which are necessary ingredients of nutriment to these growths. Now, notwithstanding these salts, that is, most of them in a condition suitable to be absorbed by the roots of wheat or corn, be exhausted, rest together with the frosts of winter, are capable in some measure of furnishing a new supply. Disintegration is the term used to denote this natural process; and fallow-grounds are examples of its utility.

Certain growths are, by experience, found so far from impoverishing soils, that they leave it in a condition eminently fitted for crops which are intended to follow them. Red clover, lucerne, &c., for example, are found to be advantageous growths with which to precede wheat and corn crops. And why are they so? The answer is simple and easy. Lucerne, clover, &c., are growths which do not require for their nutrition those salts, at least only in minute quantities, upon which the successful culture of corn and wheat almost wholly depend. Disintegration is thus permitted to take place; and, at the same time, the roots, straw, leaves &c., of clover, and growths akin to it, furnish an abundant supply of humus—in other words, vegetable mold—thus fixing carbonic acid.

"Although," says Liebig, "the quantity of humus in a soil may be increased to a certain degree by an artificial cultivation, still, in spite of this, there cannot be the smallest doubt that a soil must gradually lose those of its constituents which are removed in the seeds, roots, and leaves of the plants raised upon it. The fertility of a soil cannot remain unimpaired, unless we replace in it all those substances of which it has been deprived. Now this is effected by *manure*."

In the application of manure, it is of much importance to the practical farmer to know of what ingredients, necessary to the culture of his crop, a long succession of crops have robbed his field; for upon this knowledge his successful efforts to restore his land must mainly depend. "It must be admitted," says our author, "as a principle of agriculture, that those substances which have been removed from a soil must be completely restored to it, and whether this restoration be effected by means of excrements, ashes or bones is in a great measure a matter of indifference. A time will come when fields will be manured by a solution of glass, with the ashes of burnt straw, and with salts of phosphoric acid, prepared in chemical manufactories, exactly as at present medicines are given for fever and goitre." Then, every farmer must be his own doctor—at least so far as the diseases of his fields are concerned! W. M.

PUTNAM COUNTY, Ia.

BOGS ISLAND GRAPES---SCUPPERNONG---MUSCADINE, &c.

CINCINNATI, March 14th, 1847.

Mr. Beecher: —We daily prove the truth of the declaration, that "old things shall become new." In the present number of Hovey's Magazine, a correspondent informs us of a *new* grape in Ohio. *New*, because recently introduced into notice — the Bogs Island grape. Of this grape I heard a high character thirty-five years since. It was then supposed to be a French grape, planted by the early French emigrants on the Ohio river at Pittsburgh, and it was then supposed it had been washed into the Ohio river by a high fresh, and deposited on Bogs Island, in its descent down the river. I procured it at both trouble and expense, some twenty years since, and still have a few plants of it in the vineyards on Tusculum. It has one quality that should recommend it highly to all families having mischievous boys in the neighborhood. You could scarcely hire them to steal the fruit a second time, even if there was the danger and risk of climbing a wall twelve feet high, to get at them. The writer gives the name of Senator Ewing, as a voucher, that he ate those grapes when a boy, and thought them superior to any grape he has ever tasted. Grapes have deteriorated since our days of boyhood. The Fox-grape of New Jersey was, in that day, superior to the Victoria. And even the green apple, of the size of a marble, was superior in flavor to the mature Newtown pippin of the present day. I know this, from actual experiment. After twenty years residence in the wilds of the west, I returned to the land of clams and buckwheat, and one of the first things that struck my olfactory nerves, on reaching the "Queen of Rivers, Raritan," was the scent of the Foxgrape. I knew it instantly, I hasted to the bushes and seized the fruit. But judge of my surprise, when I found the skin half an inch thick, and the pulp as hard and as solid as a musket ball. I could not swallow it. We still hear much said of the superior quality of the Scuppernong grape; the size of the bunches, and its superiority for wine. The latter, I have tasted, and deem it of little value. Its fruit I have not; but have long been convinced, from an examination of the wood of the vine, that it is the same as the Muscadine of the Mississippi, and about equal to the Fox-grape for the table. It seldom produces more than from two to six berries on the bunch. It is deemed a very unhealthy fruit on the Mississippi. We are also told of fine wild grapes growing in Texas. A gentleman lately wrote me, that they had two fine varieties growing in that region, and proposed to send me plants. The name of one of them, satisfied my curiosity. It was called the "Cut-throat." From his description, I supposed it Scuppernong. I enclose you a letter, from Mr. Affleck, from which you may make extracts, that will throw light on the subject. My object, in troubling you with this letter, is to save persons the trouble and expense I was at, in procuring the famous Bogs Island grape. Forty years since, we had accounts of a grape growing below this, on the Ohio, in the drift wood, at the head of Laughrey Island, of unrivalled quality, and all the early settlers in that region, yearly gathered its fruit. It was supposed this was also a French emigrant from Pittsburgh. I had the island searched in the fall of the year, some twenty years since. The grape had disappeared. It was said some Mesmerizer of that day had discovered that large sums of money had been deposited among the drift-wood, and in searching for it, had started the drift-wood and the money; and the greater treasure, the Laughrey Island Grape, had gone with them.

Yours, with regard,

N. LONGWORTH.

MAGNOLIA PLANTATION, Adams County, Miss., February 14th, 1847.

N. Longworth, Esq:—SIR:—

Our woods are full of the common brown or russet Muscadine;; both on the uplands and lowlands; the most abundant in the former. The white variety is rare. I know of but one plant in the woods. The fruit is a delicious one, though, beyond doubt, very unwholesome, and, so far as I have been able to determine, identical with the Scuppernong. The latter, when cultivated, is larger; the pulp, (which is hard and astringent) of less bulk and the juice more abundant and richer. I have seen the Scuppernong in North Carolina, very large and fine, but still identical with the Muscadine. The vine, leaf, pulp, skin and flavor of the juice in both *are the same*. The skin is like a piece of tough, hard, buckskin; but the juice is very rich and fine, with a peculiar and pleasant flavor.

I will, on my return to Ingleside, next week, send you a plant or two, and if possible, some cuttings of the Jack Grape. It is, beyond dispute, identical with your *Cigar-box*. I have them growing and bearing side-by-side; the Cigar-box having been sent to me by Sleath and by Mottier. I have also repeatedly eaten of the fruit at Cincinnati, New York, and Philadelphia, and cannot be mistaken.

I am turning my attention much to peaches and apples and pears, for the New Orleans market. I have now a bearing orchard of 800 to 900 fine young peach trees, embracing nearly 100 budded varieties, *almost all* Mississippi and Louisiana seedlings. I shall be able, I hope, to test them thoroughly this year, *growing side-by-side*, though my selection was made with great care, during three good fruit years, whilst chairman of a horticultural committee. We can beat you a long way in juiciness and flavor, and equal you in size.

I find not the slightest difficulty in growing fine apples, *succeeding perfectly* with the early sorts, Summer Queen, Summer Rose, Prince's Harvest, &c. I filled some large *apple trees* with grafts sent me by Sleath from your trees, of Seckel, Bartlet, and Julienne pears; also of some of Van Mons' finest sorts I imported. This was done three years ago; and I had, last year, a good many specimens, and those magnificent ones, particularly of the Bartlet. They will overgrow, evidently, in a few years, but in the meantime I get some fruit, and *abundance of grafts*.

I am at this time putting in 8,000 quince cuttings for stocks for the pear, and shall plant out *every one of them* here and at Ingleside, in rows twelve feet a part, tending and manuring regularly, as I would a crop of corn. The quince does *well* with us, and particularly under such treatment, and what pears I have on quince stocks grow beautifully.

THOMAS AFFLECK.

THE CROPS, TREE-BLIGHT, &c.

EVERGREENS, Feb. 8th, 1847.

In regard to crops in this vicinity, the past year. In consequence of the unprecedented quantity of rain that fell during what was usually termed the crop season, our wheat, corn, and irish potatoes suffered materially. The unusual degree of heat with the wet, scalded the potatoes. Our grapes suffered almost universal destruction from the same cause, causing a wholesale blight, except those occupying shaded situations and those sheltered from the rains. Where fairly exposed to both sun and rain, destruction was certain. When exposed to but one of these, they remained perfectly sound except the depredations of the curculio, a pest that I fear is about to destroy, not only our plums, but our peaches, cherries, grapes, gooseberries, nectarines, apricots, and many of our apples. In consequence of the extraordinary dry spring of 1845, no rain having fallen from the first of April to the tenth of June; during which time the fruit and forest trees principally, and the latter exclusively, perform their annual growth of wood and form fruit-

buds for the succeeding year, the growth became quite stinted, pores of the wood contracted, circulation of sap retarded, and of course more abundantly elaborated by its tardy progress through the sap-wood and leaves. The natural consequence was, a universal formation of fruit and flower-buds, upon every variety of tree and shrub. The spring of '46 of course presented a continual succession of flowers from the blooming of the soft maple in February, till the chestnut and sowerwood closed the scene of the forest in July, and the althea of the shrubbery in October. The bloom of the fruit trees was never so abundant since my recollection, and having entirely escaped the spring frosts, the prospect was never greater for an abundant supply of every variety of fruit until the fruit was as large as the end of my finger, when the blight, or surfeit, struck the apples and pears, destroying the larger portion of the former, and almost the entire crop of the latter. The trees suffered severely as well as the fruit, killing the entire heads of nearly all the bearing pear-trees, and severely blighting the small wood of the larger portion of the apple-trees. Like the pears, some sorts suffered much worse than others. The summer Queen, and Newtown pippin among the worst. The beurre Royale, and beurre Easter pears not scorched in the least, while a dozen other sorts all round them on same tree were severely blighted and many of them entirely killed. Something singular, the trees both apple and pear, that were fullest of fruit, suffered much the most. Even portions of the same tree that were fullest, suffered much worse than the balance of same tree. This surfeit took place a few days after a week of the warmest spring weather I ever experienced, causing the most rapid growth of vegetation imaginable. The first appearance of the disease, was a black mold or mildew upon the stalk of the young fruit, which soon spread upon the fruit, turning it black, and, then upon the ends of the twigs upon which the fruit grew, spreading thence to other portions of the wood. Those portions destitute of fruit being last attacked, if injured at all. Young trees escaped generally; branches, however, of young pear and apple-trees, that had been ringed the previous year to force them to fruit, were invariably blighted, the remainder of the head escaping entire. Those ringed branches had not pushed any after July. The wood had become well matured; the incision completely healed.

Query. Does it not appear from these facts, that the malady was sap-surfeit, produced from two causes? 1st, from the pores or veins of the wood having become contracted, in consequence of the drouth of '45; and 2d, from the effects of the extraordinary hot and wet growing weather of last spring? If not, why do young tender trees in the nursery escape, after having continued to grow until checked by hard frosts in October, and old trees with well-hardened wood that never pushed a particle after June or July, become almost universally injured?

I think friend Y. and brother Ernst occupy opposite extremes in regard to annual crops in fruit-trees. Does Y. wish to be understood, that the tree forms the fruit-bud the same spring that it opens and forms the fruit? If so, he is about as wide of the mark as Mr. Ernst is, in saying that the fruit is always formed upon spurs the formation [growth] of which takes two or more years. The truth is, the wood upon which the fruit is produced, and the bud that produces it, are both formed the year preceding the production of the fruit. How frequently do we see ten or a dozen apples or pears produced upon a graft of the preceeding year's growth and worked upon young wood. It is true of those spurs, and also of the tree itself. It may have been a dozen years in formation, but it must add a new growth of wood for the production of fruit.

H. N. GILLET.

QUAKER BOTTOM, L. C., Ohio.

POTATO ROT.

Mr. Beecher: — In your last number of the Farmer and Gardener, among other questions on the cause of the potato rot you ask, "does planting on high or low, wet or dry, land, materially affect the result?" I shall not attempt, scientifically, to answer any question on the subject, but will give you the result of my experience. I live on upland, have always planted my potatoes on high and rolling ground, and have never suffered any from the potato rot. I do not believe this is a true preventive, but think it, as yet, materially affects the result. The potato rot made its appearance, to some extent, in this region three years ago, and has since then increased to an alarming degree, and as far as my observation has extended from much enquiry, the result of planting in low and rich soil has been worse. It is very common among farmers, and in fact it is indispensable to a good yield, to plant in low, rich, soil. Hence, I infer, much of the misfortune of potato-growers. I plant my potatoes from the 10th to the 15th of May, and planted last spring six bushels in hills one-third of aker on a high ridge of new ground. I dug and put away in the fall sixty bushels, and while my neighbors universally, who planted in low ground that inclined to be wet have lost their entire crop, mine and others', who planted on high and dry ground, remain in a fine, sound, condition. I think, however, new and strong land, if it is dry, is the best not only to yield, but as a thrifty growth is essential to the health of any vegetable, I notice it is particularly so with the potato.

C. M. J.

METEOROLOGY.

YORKTOWN, INDIANA, Feb. 24th, 1847.

Mr. Beecher:—In the Farmer and Gardener's department of the Indiana Journal of the 16th inst., I observe a summary of a meteorological register of Woodward College, Cincinnati, for December, 1846. On comparing it with one kept at this place, I find more difference than I had supposed would be occasioned by the difference in latitude of the two places.

I therefore concluded to send you a summary of my register for December and also for January of this year; if of any service or satisfaction to you, I will probably forward them monthly.

I would remark, that my thermometer appears to be a good instrument. The observations are taken in a northern exposure out of reach of the direct rays of the sun, at 6 o'clock A. M., 12 o'clock M., and 6 o'clock P. M., and every care taken to have them accurate.

The want of proper aparatus for taking the course of the wind and measuring the depth of snow and rain is the reason why they are not mentioned in the summary.

December, 1846.

Least height of thermometer, (23d, 6 o'clock A. M.,)	—7.°
Greatest " " (27th, 12 o'clock M.,)	61.°
Mean temperature of the month, - - -	34.19°
Coldest day, 19th; mean temperature, - - -	21.66°
Warmest day, 27th, " " - - - -	56.66°

Entirely clear, 8 days; entirely cloudy, 14 days; variable, 9 days; rained and snowed, 12 days. Rained the 1st, 2d, 6th, 7th, 29th, 30th, and 31st. Snow and sleet on the 8th, 9th, 10th, 17th, and 18th.

January, 1847.

Least height of therm. (8th and 9th, 6 o'clock A. M.)—	9.°
Greatest " " (15th, 12 o'clock M.,) -	62.°
Mean temperature of this month, - - -	25 46°
Coldest day, 19th, mean temperature, - - -	0.°
Warmest day, 15th, mean temp., - - -	58.°

Entirely clear, 4 days; entirely cloudy, 8 days; remainder variable. Rained the 1st, 4th, 15th, 25th, and 29th—5 days. Snow and sleet, 7th, 18th, 24th, 27th, 29th, and 31st—6 days. Rain, snow, and sleet, 11 days. Violent thunder on the evening and night of the 25th.

This month will long be memorable for the great freshet. The waters were at the greatest height at this place on the 2d in the forenoon, and began to subside in the evening. The damage done was immense.

February, 1847.

Least height of thermometer, (4th, 6 o'clock A. M.)	—5.°
Greatest height, " (16th, 12 o'clock M.)	55.°
Mean temperature of month, - - - -	31.65°
Coldest day, 4th; mean temperature, - - -	13.05°
Warmest day, 16th, mean temp., - - -	45.66°

Entirely clear, 3 days; entirely cloudy, 15 days; remainder variable. Rain, the 2d, 7th, 16th, 18th, 20th, 21st and 26th—7 days. Snow and sleet, the 2d, 3d, 21st, 22d, 24th, 26th, 28th—7 days. Rain, snow, and sleet, 14 days. High water, the 23d. Moderate thunder, 26th about noon.

The river wanted 3 feet 4 inches of being as high as last month.

The winter thus far has been exceedingly severe on small grain. Wheat looks badly; worse than I have ever seen it.

JOHN C. HELNO.

We shall be glad if our correspondent will furnish these monthly accounts. A rain-guage is easily made; and is of great importance. They have been made here, and could, probably, be procured without difficulty.—ED.

WINE COUNTRIES.

Somewhere in the second volume of the Farmer and Gardener, the editor assuming a very common opinion as true, discusses with his usual logical tact the subject of ebriety in France. It may, however, be well to show, that it is not admitted by all authorities, that temperance, by any means, prevails in vine-growing countries.

That vine-growing countries are the most temperate ones, Periera thinks is unsustained by facts. Dr. Bell quotes from Dupin in a French medical journal, the following quantities of alcoholic drinks consumed in France in the year 1830:

Wine, - - - -	611,466,000	gallons
Cider, - - - -	234,121,000	"
Beer, - - - -	121,000,000	"
Brandy from wine, - -	15,074,000	"
" " cider, - -	2,890,800	"

This is at the rate of 42 gallons for every individual in the whole population of France. The sum total of alchohol in the above drinks, is 86,570,870 gallons, or two and a half gallons for each individual. The excise duties on beer in France in 1824, amounted to 1,800,000 dollars. Dr. Bell states that from personal observation he has convinced himself that "drunkenness is becoming, and has in most parts of France become, as much a national vice, as it was, and still alas! greatly is, in the United States and the British empire." M. Fillerme, the statistical writer, states that "drunkenness is the greatest curse of the laboring classes of France." The same views in relation to the intemperance of France are held by M. Perier, Bulwer, and other standard writers."

It is clear, however, that there is no necessary connexion between intemperance and the cultivation of the vine. Various causes will determine the ebriety or inebriety of a people, aside from the abundance of wine. Citing but a single authentic witness, (Brydone, who wrote in the year 1770,) we find the inhabitants of the same country, and that a small one, temperate in one portion of it, while the people of another section are addicted to beastly drunkenness. Agrigentum, ages ago, notorious for its bacchanalian vices, retained this feature unchanged in the time of our traveler; while but a short distance from it stood sober Palermo. Brydone attributes this difference, mainly, to the elevated, and consequently colder situation of Agrigentum, and the warmer locality of Palermo. So also, mountainous Switzerland, the same author tells us, is fruitful in wine and sots. And by the side of reeling Agrigentum, stands a "little village, on the top of a high mountain," whose inhabitants are so miserably poor, that in the midst of the flowing vineyards, they cannot find the means of getting drunk. Spain, Portugal and Italy, all of them wine countries, are represented as sober territories;—sober, not because of poverty nor of temperature, nor of virtue, but because of the proximity of the inquisition: in otherwords, wine would loosen the tongue, the tongue might reveal treasonable things, these would soon reach the inquisitors' ears, and then, woe to the wine-drinker!*

J. T. P.

IRON HOOPS ON PLUM TREES.

E. W. Vose (see present vol. p. 9,) may be informed that iron is not known to have any affinity for nitrogen or hydrogen; but that it unites with carbonic acid and oxygen gases; that it decomposes water (which consists of oxygen and hydrogen) and uniting with the oxygen of the water, liberates the hydrogen, which being the lightest of all gases, would rapidly escape to regions above, without any detriment, as I believe, to the curculios. Dew resting upon the hoops, would be decomposed at the ordinary temperature of the air, and the hoops would *thus* yield hydrogen, but in no other way. No gas is known to escape from the metals as they are elementary bodies, and therefore have *nothing* to part with. I suspect the fruitfulness of the plum tree alluded to, attributable to other causes than the rings.

The querist thus perceives that it is not oxygen that rises from the iron; and even if it did, it would only increase the animation of the little intruders; if it serves insects as it does man.

J. T. P.

*The reader may inquire why such a cause operates in Italy, and not in Sicily, an adjacent province. In Sicily, the inquisition has been sedulously prohibited.

SELECTIONS.

LIME AND ITS USES---NO. 1.

BY R. L. PELL, ESQ., OF PELHAM.

Read before the Farmers' Club of the American Institute, and communicated to the Farmer and Mechanic for insertion.

Lime is an important, and an indispensable requisite in the growth of nearly, if not all, cultivated plants and fruit trees; in fact, I have never noticed, in any analysis made by analytical chemists, recently, of various plants, one in which lime did not form a principal ingredient. It must therefore be considered an essential part of all vegetable substances, as a direct food. By chemists, it has been found that the ashes of the oat plant contain five per cent. of lime. In two pounds of wheat, twelve grains have been found. In two pounds of rye more than thirteen grains. In two pounds of barley more than twenty-four grains: more than thirty-three grains in a given weight of oat straw; and forty-six grains in the same weight of rye straw. It abounds in the wood of trees: the ashes of the oak contain thirty-two per cent.; those of the poplar twenty-seven per cent.; hazel, eight per cent.; mulberry, fifty-six, and the hornbeam twenty-six per cent. The proportion of lime is found to vary with the composition of the soil on which plants grow. Thus, the ashes of the fir growing upon a limestone hill, were found to contain forty-three per cent., but the ashes of the leaves of another growing upon a granite soil, yielding only twenty-nine per cent. I do no believe a soil can possibly be fit for agricultural purposes if entirely devoid of lime. Its action is to dissolve and render soluble all organic matters contained in the soil, and before such substances are made soluble, they cannot be elaborated by plants. It has probably been observed by all present, that the effects produced by an application of liquid manure to growing plants, was far more rapid than that obtained by dry applications. When in England, in 1832, I observed that it was the uniform practice among farmers there, to draw upon their field dry manures and composts—liquid manures were not generally used; the liquids were generally absorbed by the straw and dry fodder of their barn-yards. In Switzerland and Germany, I observed an entirely different mode of management: there the farmers who had any reputation as such, were supplied with cisterns, tanks, &c., into which all their straw, litter, dropping from the cattle, and refuse of every kind, was daily raked; the tanks were then partially filled with water, and thus a large portion of the manure became liquid. After remaining for four weeks, it was carried upon their fields in large hogsheads, on carts drawn by oxen, generally, sometimes by horses. On some farms, I was informed that it was customary to clean their cattle and horse stalls but twice aweek; the litter taken from them was thrown into the cisterns and washed. After all the particles of manure were removed, the straw was taken out, and placed in a square pile to rot. The liquid was then immediately drawn upon their grass-fields and gardens. The results thus obtained were marvellous. I mention these facts to show that lime would be valuable, even if it did not form a part of nearly all cultivated plants; inasmuch as it renders dry substances soluble. Lime attracts moisture from the atmosphere; and thus it is of vast importance to land during a drouth. I tested its value in that respect several years ago. In the month of July, I placed around several thousand apple trees, a peck of lime to each tree, and left it piled

about the trunk until the month of November, during which time the drouth was excessive, so much so, indeed, that the trees not limed turned yellow, and lost their leaves very early in the fall; the fruit dropped from them prematurely ripe, whereas those that were limed remained perfectly green, until late in the fall, and the fruit borne by them was magnificent. At any time during the excessive heat in August, of that year, a person might moisten his hands by placing them, for an instant, under the small heaps of lime surrounding the trees.

Professor Schutler, of Germany, found that 1000 parts of lime, dried in a temperature of 212° gained, by exposure for three hours to air saturated with moisture, at a temperature of 60°, 11 parts: in 12 hours 26 parts: in 24 hours 31 parts: in 48 hours 35 parts, when it appeared to have become saturated with moisture, for in 72 hours it had not again increased the weight. The nature of lime was first demonstrated by Davy, in 1807: he showed that, like the other alkalies, it was a metallic oxide. The metallic base of lime he termed calcium; its equivalent is so, and lime being a compound of one atom of calcium and one of oxygen, is represented by the equivalent number 28; and hydrate of lime by 28 lime + 9 water = 37. The salts of lime are obtained by dissolving carbonate of lime in the respective acids; several of them exist native. Sulphate of lime, selenite, or gypsum is an abundant natural product, and may be formed artificially by adding sulphuric acid to the solutions of the salts of lime. Farmers should be very particular in the selection of their lime for agricultural purposes. I speak from experience in this matter; having sown within the last seven years, more than 10,000 bushels—3000 of which were stone lime, and the balance oyster-shell. The stone lime was obtained on the banks of the Hudson, and contained, as most stone limes do, a large per centage of magnesia. By its use I am convinced my land was injured, and it may require several years to recover from the bad effects produced; the fact is, all lands require magnesia in minute quantities to grow the usually cultivated grains, and all lands contain a sufficient quantity for agricultural purposes; therefore, by adding lime containing a large per centage of this substance, you add a mineral not required, and, consequently, take up the space that should be occupied by some more useful ingredient. I would not condemn all the stone lime found on the banks of the Hudson, as I have examined but few of them; those few, however, have all been strongly impregnated with magnesia. Statuary marble is the only perfectly pure carbonate of lime, or rather if not perfectly pure, more nearly so than any other stone lime. In examining limestones, place them in strong acids, and if they do not effervesce very rapidly, and yet are so hard as to enable you to mark glass with small pointed pieces, you may be assured they contain flint earth, and possibly clay. If the lime is not sufficiently hard to scratch glass, and on effervescing with acids the action is very slow, and the solution resembles cream, you may make up your mind that it contains magnesia. When the limestone appears brown or yellowish red, it contains iron.

The chemical effect of burning stone lime is, that the water and carbonic acid gass is driven off, which amounts to about thirty-five per cent. After having been exposed to the atmosphere on your farms for a certain length of time, the carbonic acid of the air is again absorbed by the lime, which reduces it to the state of chalk, or carbonate: if taken up by plants before it becomes a carbonate, the charcoal and oxygen abounding in all plants immediately converts it into one. Caustic lime applied to your soil, reduces hard vegetable matter into a state easy of decomposition. When the lime takes the chalk form, it furnishes matter requisite to supply the organic structure to plants which grow in its vicinity. You may always lime lands advantageously which abounds in hard, dry, undecomposed roots, sods, muck, or dry fibres, and use upon such caustic lime. As all soils are benefitted by mild lime, you can scarcely ever go amiss in its application upon any species of land, as every crop you grow upon it requires lime, and will rapidly lessen its quantity in the soil. Nitrate of lime is produced in the soil by lime, as it decomposes the earth, rendering it sufficiently soluble to enter the roots of plants. Alkalies and earths can never enter the plants in a pure state, as before stated. Four years since, I manured a fifteen aker lot with oystershell lime, using 300 bushels to the aker, on a sandy loam that would not grow anything more valuabe than a well known pernicious weed, called St. Johnsworth. That year the wheat grown upon it, weighed sixty-four pounds to the bushel. I seeded a lot with one bushel of clover seed and half a bushel of timothy seed, to the aker; and the first year after, cut two and a half tons of hay, and the second year, three tons per aker. To a heavy tenacious clay, I would not hesitate to use 600 bushels per aker. The chemical action of the lime on such land, is to render it friable, easily worked, less liable to injury by the powerful rays of the summer sun, permeable to atmospheric influences, and easily acted upon by showers. It deprives all the injurious insects, in soils, of life—decomposes them, and enriches the soil with their remains.—*Farmer and Mechanic.*

[To be continued.]

ON THE CULTIVATION OF GRASSES.

On the judicious selection and proper cultivation of grasses materially depend the profits of the farmer. These constitute, directly, the principal food of his farm-stock; and, indirectly, the food of his crops. If his grasses are abundant and nutritious, a greater number of domestic animals may be maintained, and the greater will be the returns they will make to the soil, in manure. A well-set sward is far more enriching to the soil, because it contains much more organic or vegetable matter, the food of plants, when plowed under, than one that is thin and meager. A judicious selection comprises those kinds which are naturally best adapted to the soil. A proper cultivation consists in keeping them free from stagnant water and noxious weeds; and, if to remain long in meadow, in giving them a triennial top-dressing of manure or compost. One aker of good grass will cut three tons of hay, or keep a cow, or, if in lucerne, will soil half a dozen cows five months in a year. Four akers of lean, poor grass will cut little more, if any, than three tons of hay, and will barely suffice to keep a cow. There is as much difference between good and bad grass lands, in regard to profit, as there is between a good and a bad field of corn or wheat.

The common practice in this branch of husbandry has hitherto been wretchedly bad. Generally, and until lately, we have either altogether omitted to sow grass-seeds, or have sown them so sparingly, or of so few kinds, that we have in a great measure lost much of the profit which they are calculated to afford. Timothy and red clover have been almost the only seeds sown; and unless the soil has been prolific in indigenous kinds, our pastures have been thin, and our meadows light. There is one fact in regard to grasses which is not sufficiently known and appreciated. Different species subsist upon different specific properties of the soil, and draw their food from different strata, the fibrous rooted gathering sustenance from the upper, and the tap-rooted from the lower stratum. And it has been found, that although a superficial square foot of turf will only support a given number of plants of one species, it will nevertheless support double or treble that number of plants comprising several species.

We mean, by cultivated grasses, those of which the seeds are sown by the husbandman, whether indigenous, or natural to the soil, or exotic. And in discussing the subject, we shall consider them under two heads, and shall draw liberally for facts and illustrations from Loudon and other approved agricultural writers. The divisions we propose are,—

1. Herbage plants, or those particularly fitted for alternate husbandry.

2. Cultivated grasses, or those best adapted for the meadow and pasture.

HERBAGE PLANTS.

Under this head, Loudon has embraced the clovers, lucerne, sainfoin, birdsfoot trefoil, parsley, burnet, ribwort, plantain, broom, wall-flower, yarrow, &c. The six last are never cultivated among us as herbage or field plants; the sainfoin, which is peculiarly adapted to chalk soils, has never been successfully cultivated among us, and the birdsfoot trefoil but partially. We shall therefore confine our remarks, in this department, to the clovers and lucerne.

The cultivation of clovers and lucerne exclusively for live stock, is comparatively a modern improvement in hus-

bandry. These plants were not introduced into British husbandry until the sixteenth century. Their introduction among us, on any thing like a general scale, was far more recent. Indeed, lucerne has hardly yet obtained a footing among us; and a great many of our farmers are yet strangers to the great advantages which the cultivation of the clovers imparts to farming operations.

In Flanders, where husbandry underwent its earliest improvements after the feudal age, and where it is found now most to excel, the cultivation of clover is deemed indispensable to profitable farming. It forms a part of the course in every system of rotation upon all soils that will grow it. Upon their cultivation, says Radcliffe, hinges apparently the whole of the farmer's prosperity. "Without clover, no man in Flanders would pretend to call himself a farmer." Clover is used there as it ought to be used here—both to feed the animal and to enrich the soil. In great Britain, clovers are considered alike indispensable to good farming, particularly upon sandy and other light lands. Their general introduction into American husbandry promises higher advantages than have been derived from them in Europe, inasmuch as gypsum, which exerts a magic in their growth, produces a more uniformly beneficial effect in the United States than it does in Europe, excepting perhaps in the interior of Germany. Those districts in our country in which clover and plaster were first introduced, as some of the counties in the valley of the Hudson, and on the eastern border of Pennsylvania, have unquestionably made the most rapid strides in agricultural improvement, and are now confessedly, and by far, the best cultivated districts of our country. Those who have followed their example, in whatever part of the country they have been located, are realizing a rich reward for their intelligence and enterprise. Several counties might be named, which have doubled their agricultural products, and the profits of their agricultural labor, since the introduction of clovers and gypsum. No thorough-going farmer, we believe, who has given them a fair experiment, has voluntarily given them up.

The species of clover in cultivation are—

1. The common red clover, (*Trifolium pratense*,) a biennial, and sometimes, if not permitted to seed, a triennial, known from the other species by its broad leaves, luxurient growth, and reddish purple flowers.

2. The white, or creeping, or Dutch clover, (*T. repens*,) is a perennial plant, known by its creeping stems and white flowers; and springing up, it would seem, almost spontaneously, in most of our pastures and meadows.

3. The yellow clover, hop-trefoil, or shamrock clover, (*T. procumbens*,) a biennial, known by its procumbent shoots, yellow flowers, and black seeds. This species is not cultivated among us, though it seems to abound in the northern and middle States.

4. The cow-grass, meadow clover, or marl-grass, (*T. medium*,) of Linnæus, and resembling, says Beck, the *T. Pennsylvanicum* of Wild,) is a perennial, resembling the red clover, but of a paler hue, dwarfer habit, with pale red or whitish flowers and long roots, very sweet to the taste. Whether what we term *Southern Clover* is the *T. medium*, or *T. Pennsylvanicum*, or a variety of the *T. pratense*, we shall leave it to botanists to settle, barely remarking, that its time of flowering is usually ten to fourteen days earlier than that of the northern red clover.

5. Scarlet clover, (*T. incarnatum*,) an annual, a native of Italy, but little known or cultivated either in the United States or Great Britain. We have sown it twice on a limited scale; and although it promised a handsome product, it did not attain its growth in time for a forage crop, or to mature its seeds.

Of the species we have named, the pratense, repens, and medium, if the latter be a distinct species, are the only ones which are, or are likely to be, cultivated among us. The first yields the heaviest burden, but is coarser, and later in maturing than the last named; and the latter has consequently one manifest advantage over the former,—it will give two crops in a season, one to the scythe and one for seed. It is to be remarked, that the first growth or crop of clover seldom produces much seed, on account of the heat of our mid-summer. If the first crop of the large clover is not cut until it is in full blossom, the season hardly suffices for a second crop to mature its seed. The southern clover may be fed till the twentieth June, or the first crop taken by the twenty-fifth or twenty-eighth, and the second or seed crop will come to perfect maturity, in ordinary seasons, before the autumnal frosts. The white clover is not sown to the extent it deserves to be. Being a perennial plant, and grateful to all kinds of farm-stock, its continuance in meadow and pasture grounds renders it highly valuable, both for hay and grazing. It does not seem to intrude upon the taller grasses, but will occupy every vacant space, and add essentially to the value of the crop. It is universally valued and admired; then why not sow it more generally?

The soil best adapted to the growth of red clover, (*T. pratense* and *T. medium*,) to which we shall hereafter confine our remarks, is a deep, sandy loam, or other soils which will admit freely the long tap-roots to extend downwards; but they will grow in any soil, provided it be dry. Calcareous soils are also peculiarly congenial to clover; and the application of gypsum upon soils sensitive to its influence, will call into action the seeds, which before would seem to have lain dormant, for want of this stimulus, or specific food.

The usual time of sowing clover-seed, is in the spring, if with a spring crop, before the last harrowing; or upon winter grain in March or April, when the field will bear cattle without poaching the ground, followed by a light harrow or roller. Let no one fear to injure his grain by harrowing it in the spring. The harrow or roller effects a material benefit, by breaking the crust which is generally perceptible on the appearance of dry weather, in the spring, closing the innumerable cracks which are caused by the contraction of the soil, and in pressing down, and even covering the crowns of the plants. Harrowing winter grain in the spring has long been a general practice in the north of Germany, and the practice would not have been persisted in had it not been found beneficial. Clover-seeds are sometimes sown with the autumn crop, in September or October; tho' this practice is not to be approved of, as the plants do not ordinarily obtain sufficient strength to withstand the severity of our northern winters. A better practice would be, we think, to sow with buckwheat in July. The plants would then have time to establish themselves well in the soil. We, however, think that spring sowing is to be preferred in the northern States.

The quantity of seed to be sown on an aker will depend upon the quality of the soil, the purpose to which the clover is to be applied, and the quantity of other grass-seeds sown with it. As much of the seed sown upon stiff clays, or upon grounds not well pulverized, will not vegetate, for want of a continued supply of moisture, allowance should be made for the failure; yet, upon these, and wet grounds, the main dependance after the first year, is upon timothy and other grasses sown with the clover. If the ground is intended for pasture, the varieties of seeds should be as extensive as possible, as the object is to obtain an abundance of food at all seasons, and to render the pasture perennial. The usual quantity of seed sown on the aker in the United States, is about ten pounds; in Great Britain it is often increased to fourteen pounds; while in Flanders six pounds is the medium quantity, though in the latter country the land is always in the best condition to receive it. The more plants there can be made to grow, the finer will be the herbage, and the greater the amount of vegetable matter afforded by the ley to the crop which is to follow.

The after-culture of clover consists in freeing the surface of stones and sticks, the soil from docks and thistles, and in applying an annual top-dressing of gypsum, or, when this is inoperative, of lime or ashes. The top-dressing is best applied in the spring, before the clover begins to grow. Upon lands annually dressed with pasture, a bushel is considered a sufficient dressing for an aker, though greater quantities are often applied with advantage.

The making of clover into hay is a process different from that of making hay from natural grasses. All herbage plants abound most in nutriment, and should be cut before the seeds are formed, and indeed before fully in blossom, that the full juice and nourishment of the plant may be retained in the hay. A crop of clover, when cut in the

early part of the season, may be ten per cent. lighter than when it is fully ripe; but the loss is amply counterbalanced by obtaining an earlier, a more valuable, and more nutritious article; while the next crop will be proportionably more heavy. The hay from old herbage will carry on stock, but it is only hay from young herbage that will fatten them. When the stems of clover become hard and sapless, by being allowed to bring their seeds towards maturity, they are of little more value as provender than an equal quantity of the finer sort of straw.

The mode of making clover hay, as practiced by the best farmers, is as follows: The clover is cut close to the ground, in as uniform and perfect a manner as it is possible to accomplish, by the scythe kept constantly sharp. That part of the stem left by the scythe is not only lost, but the after-growth is neither so vigorous nor so weighty as when the first cutting is taken as low as possible.

As soon as the grass is partially wilted, let the swath be gently turned over, but not spread or scattered. This may be done with forks or rakes. If the weather is fair, and the clover cut in the morning, the swaths may be turned after dinner; and if mown after noon they may be turned before evening; at which time those turned after dinner may be put into grasscocks. This last operation should be performed with care, and in this manner: — Three swaths are appointed to a row of cocks. The laborer gathers a good forkful, and deposits it on the centre swath, if the ground is dry, if not, in one of the intervals, putting it down gently, so that the cock may present a small base; he then continues to gather and deposit it in the same way until the cock is brought to a point, at the height of from four to five feet, according to the dryness of the clover,—the drier this is, the higher the cock may be made. When completed, the grasscock is two to three feet broad at the ground, tapering to the apex, and the projecting ends of the herbage drooping, so as to carry off the rain which may fall. The points to be regarded are, to cock before the leaves begin to crumble, not to suffer the dew to fall upon the dried surface of the swath, and to build the cocks so as completely to shed rain, should the weather be bad. The grasscocks may stand to advantage thirty-six or forty-eight hours, without any prejudice, and should not be opened until there is a fair prospect of obtaining a few hours of good weather to complete the curing process. When this is the case, open the cocks as soon as the dew is off, spread them partially, from four to six inches thick. If the hay is good, the spread clover may be turned over between twelve and two, and in an hour or two afterwards be gathered for the barn. By this process of curing, the leaves were all preserved, injury from dew and rain is in a great measure avoided, the stalks are better dried, and the appearance and value of the forage are retained in their highest perfection. If rain is apprehended, after the grasscocks have stood a night, these may be doubled by putting one upon the top of another, and dressing with a rake. An intense sun is almost as prejudicial to clover as rain; and therefore it should not be shaken out, spread, or exposed oftener than is necessary for its preservation. The more the swath is kept unbroken, the more green and fragrant will be the hay.

The advantage of curing clover in the cock is this, that when cured by being spread, the leaves and blossoms are dry long before the stems are cured, or sufficiently dry; so that either the stems must be housed before they are properly cured, or, if made sufficiently dry by long exposure to the sun, the leaves and blossoms become too dry, crumble, and are lost. If in cock, all parts of the plant dry alike, the moisture in the mass is equalized, and when gathered to the barn, there will scarcely be a leaf lost, while the stalks will be amply cured. A slight fermentation often takes place in the cocks, which, instead of doing any injury, is a benefit,, as it prevents the hay from afterwards heating in the mow or stack. It is a good practice to sprinkle salt upon clover hay, when deposited in the barn, especially upon the first loads brought in, not so much with a view of preserving the hay, as of seasoning it, and rendering it more palatable to the cattle.

The secret of making good hay, says Low, is to prepare it as quickly as possible, and with as little exposure to the weather, and as little waste of the natural juices, as circumstances will allow. When we are enabled to do this, the hay will be sweet, fragrant, and of a greenish color.

The produce of clover, on the best soils, is from two to three tons per aker. The difference in quality, resulting from the mode of curing, is apparent from this fact, that well-cured clover, according to Loudon, is generally twenty per cent. higher in the London market than meadow hay, or clover and rye-grass mixed.

We have before remarked, clover will not perfect its seed in the early part of the season; therefore it is necessary to take off the first growth, either as a hay crop, or by feeding it off, till June, and to depend for the seed upon those heads that are produced in autumn. The product in seed varies from two to five bushels an aker. When ripe, the heads are gathered, with or without the stems, threshed, and the seed separated from the chaff in a clover-seed mill. The seed forms an article of substantial profit with many farmers, and amounts often to more than the rest of the crop. Assuming as an average four bushels to the aker, and estimating it to be worth ten dollars a bushel, the akerable value would be forty dollars. The expense of threshing and cleaning is comparatively trifling. The stems of the seed crop, if cured in the manner directed for clover hay, are of more value as fodder than straw, and constitute excellent litter for the stables and the yards.

When we take into consideration the value of the first crop for forage, and of the second crop for seed and litter; and consider, that while clover is one of the least exhausting crops to the soil, it returns more to it than almost any other crop, and benefits it mechanically by pulverzing and dividing it, by its tap-roots; — if we take these several matters into consideration, together with the facts, that clover is admirably adapted to light, sandy lands, and to the alternate system of husbandry; and that its growth is wonderfully accelerated by gypsum — we shall not be surprised at the saying of the Flemings, that "without clover, no man in Flanders would pretend to call himself a farmer;" nor shall we be surprised at the uniform success which has attended its culture in the United States.—*Buel.*

(To be continued.)

Horse Power.—We are frequently asked the question, what is understood by a *horse power?* and why that way of reckoning power came to be adopted, and brought into general use?

Before the power of steam was generally known and applied to mechanical purposes, horses were used to raise coal and other heavy bodies, and Mr. Motts, in his experiments, carefully compared the relative power of the different breeds of horses, and found its average equal to raising 33,000 lbs. one foot per minute, or what is equivalent to raise 330 lbs. 100 feet, or 100 lbs. 330 feet during that space of time, when attached to a lever or sweep of a given length. Thus, this afterwards became the standard of measuring power or force applied to mechanical purposes, and which is still retained in common use.—*Farmer and Mechanic.*

Let us never cease persuading our legislatures to pay attention to the encouragement of agriculture, and its handmaid, horticulture.

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